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FIELD-MARSHAL LORD NAPIER OF MAGDALA.

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THE

ROYAL (BENGAL) ENGINEERS

BIOGRAPHICAL NOTICES

OF

OFFICERS

OF THE

ROYAL (BENGAL) ENGINEERS

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ARRANGED AND COMPILED BY

COL. SIR EDWARD T. THACKERAY, K.C.B., V.C.

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INTRODUCTION

At the close of the nineteenth century it seems very desirable that a more complete record than as yet exists should be compiled of the distinguished services of the Officers of the Royal (Bengal) Engineers—services which have extended over a period of nearly a century and a half, from 1756 to 1900. Biographical and other notices and memoirs relating to the services of the Officers of the Corps have from time to time been published, but these are dispersed in various books, journals, and other publications.

It is with this object that, after consultation with some well-known Officers of the Corps, I have ventured with considerable diffidence to compile and arrange in this volume the biographical notices of thirty-four distinguished officers, many of whom, as Lord Napier of Magdala, Sir Henry Durand, Sir John Cheape, and others, attained to the highest positions as soldiers, administrators, or men of science, and whose services in India and other countries are fully known and appreciated.

It was at first proposed to include in this volume the names of several distinguished officers now living, among whom might be mentioned Generals Sir Richard Strachey, G.C.S.I., and Sir Alexander Taylor, G.C.B., and the Colonels-Commandant of the Corps; but it was found that the book would have assumed too large proportions, and it seemed best to restrict this volume to notices of the services of deceased officers only. It is hoped however that it may be found possible to publish in another volume the records of the services of several deceased

officers not included in this volume, as well as of those of many now living. Among the former may be mentioned General Alexander Fraser, Colonel-Commandant of the Corps, Colonel Sir Oliver St. John, General R. Maclagan, Major-General Sir Alexander Cunningham, General Sir George Chesney, Major-General Ralph Young, Major-General Sir James Browne, Lieutenant-Colonel J. C. Ross, all of whom have died during the last decade of the century.

It will be seen from the list of works consulted in the preparation of this book, that many of the biographical notices have already been published in books and journals; and although the compilation has been a work of considerable labour, it has also been one that could not fail to emphasise, if possible more clearly than before, the admiration that must exist for a Corps which for a century and a half was distinguished in every branch of military and civil administration, and in building up the great fabric of our Indian Empire.

It may not be inappropriate here to quote the words of Lord Canning, Viceroy of India, when presenting the Victoria Cross to Major James McLeod Innes in 1858.

Lord Canning said: 'I must add that it is a peculiar pleasure to me to present this Cross to an Officer of the Bengal Engineers, for I say to you—not as a compliment but in the words of sober truth—that I do not believe that there has ever existed in any army a body of men who have rendered, individually and collectively, more constant and valuable service to their country than the Engineers of her Majesty's Indian Forces. Men, all of them, of proved ability and highly cultivated intellect, they have been unceasingly called upon in peace, as much as in war, to achieve great tasks for the protection and advancement of India, and they have never been found wanting. That, when summoned to meet an enemy in the field, they can carry their lives in their hands as lightly as any man, your own deeds and those of many of your brother-officers have abundantly proved. It is in itself a

distinction to belong to such a Corps, and you, Major Innes, have the proud satisfaction to know that while you have derived honour from being enrolled among the Engineers of the Army of Bengal, you have done all that a gallant soldier can do to repay that honour, in augmenting by your own acts the lustre and reputation of your distinguished regiment.'

In publishing the records of the services of officers of a Corps of which such words have been spoken, and which includes the names of men such as Lord Napier of Magdala, Sir Henry Durand, Sir William Baker, Sir George Chesney; of the heroes, Lieutenants Duncan Home and Philip Salkeld; and of men distinguished in science and literature, as Major Rennell, Sir Alexander Cunningham, Sir Henry Yule, Sir Andrew Waugh, and Captain Basevi, who sacrificed his life in the cause of science, no apology can be needed.

In the preparation of the book I beg to accord my grateful thanks to the Officers of whose writings I have had permission to avail myself; and first of these is Colonel H. M. Vibart, Royal (Madras) Engineers, from whose work on 'Addiscombe, its Heroes and Men of Note,' and from Major-General Porter's 'History of the Corps of Royal Engineers,' I have extracted several of the biographical notices.

A few of the notices have been taken from the 'Dictionary of National Biography,' including one by Colonel Vetch, R.E., on the services of Colonel Baird Smith.

To Colonel Frederick Home, C.S.I., I am greatly indebted for the official and private letters relating to the blowing in of the Cashmere Gate at Delhi in 1857 by his brother Lieutenant Duncan Home and Lieutenant Philip Salkeld. The following works have also been consulted: 'Royal Engineers' Journal;' 'Memoirs of Sir John Bateman-Champain,' by Major-General Sir R. Murdoch Smith, R.E.; Kaye's 'History of the Sepoy War;' 'History of the Bengal Artillery,' by Major-General Stubbs; the 'Life of Major George Broadfoot,' by Major W. Broadfoot;

'Life of Major Rennell, F.R.S.,' by Sir Charles Markham, K.C.B.; 'Life of Warren Hastings,' by Sir Alfred Lyall, and other sources. I have also obtained much valuable information from the Roll of Officers of the Corps, edited by Captain Edwards, R.E., and brought up to date, at the Royal Engineers' Institute, Chatham. The following notification, lately issued by the Government of India on the retirement of Major-General Charles Strahan, shows that the reputation of the Corps, whose records commenced from 1756, has been worthily and honourably sustained to its close at the end of the nineteenth century.

In notifying in the 'Gazette' the appointment of Colonel St. G. Gore to succeed Major-General Strahan, R.E., as the head of the Survey Department, the Government of India say:—

'Major-General Strahan is the last officer of the Royal (late Bengal) Engineers in active service of the Government of India, and with his retirement the honourable and distinguished record of the Corps of Engineers of Bengal, Madras, and Bombay, raised under the Honourable East India Company, and covering a period of over a century, is brought to a close. Major-General Strahan's service in the Survey of India has extended to thirty-six years, during the last four and a half of which he has controlled it as Surveyor-General. Under his charge the Survey of India has fully maintained its great professional reputation, alike in peace and in the field, and has continued to render eminent service to the State. The good wishes of the Governor-General go with its late chief in his retirement.'

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THE

ROYAL (BENGAL) ENGINEERS

FIRST PERIOD: 1756–1800

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TOWARDS the middle of the eighteenth century the colonial and commercial rivalry between France and England had reached its climax all over the world, and the naval superiority of England was gradually developing out of the contest. In the Indian Peninsula the news of the Peace of Aix-la-Chapelle (1748) had caused a formal cessation of hostilities between the French and English, but in the same year began the war between the rival claimants for the rulership of the Carnatic province, in which the French and English trading companies took opposite sides, when the superiority of Dupleix and Bussy gave the victory at first to the French candidate.

Under the system, first invented by Dupleix, of acquiring a dominant influence in the political disputes of the native princes by maintaining a force drilled and armed on the European model, France had acquired in 1750 a decided ascendency. A kind of unofficial warfare went on for two or three years, but the system

of Dupleix, whose real genius has been somewhat over-praised, relied mainly upon complicated and very unscrupulous intrigues with the native competitors for rule in the Indian Peninsula, a network in which he himself became ultimately entangled. The English were compelled, very reluctantly, to follow his example; they were forced to contract alliances and to join in the loose scuffling warfare that went on around them, and they soon proved themselves better players than the French at the round game of political hazard. There was great jealousy and dissension as usual among the French leaders in India; their ambitious designs alarmed their native friends, and latterly some unlucky enterprises of the French party, together with the discovery in France that these military operations were loading the company with debt, induced the French Government to recall Dupleix and to sign with the English in India a treaty renouncing on both sides all interference between native states.

The position thus abandoned was never regained by France; for when regular hostilities began again two years later, Lally was beaten after hard fighting in South India, and Clive's victory at Plassy (1757) opened out for the English a much larger and more important field of war and diplomacy in Bengal, where the French from that time forward had no footing.

In June 1756 the Company had been turned out of Fort William and all their up-country factories in Bengal; the rest were half starved upon an island in the Hooghly river. Within twelve months the Company were virtually lords of Bengal, and all the treasures and resources of the provinces were at their absolute disposal; the French had lost all their settlements; their trade, up to that time considerable, was annihilated, and the export business of the country had become an English monopoly. A few years later the Company found themselves *de facto* rulers of Behar, the great province that extends from Bengal proper westward up to the Ganges at Benares, four hundred miles from Calcutta. They had come for commerce and had found con-

quest; they had been compelled to choose between their own expulsion and the overthrow of the native government; they fought for their own hand, and won so easily that they found the whole power and responsibility of administration thrust upon them without warning, experience, or time for preparation.

In 1772, when Warren Hastings arrived in Calcutta to assume the governorship of Bengal, three rival powers, Hyder Ali of Mysore, the Nizam of Hyderabad, and the Mahrattas, were at that moment contending for supremacy in the Indian Peninsula, and each of them alternately threatened the Company's possessions or proposed an alliance against the others.

The Council of Madras thought a policy of isolation unsafe when they were surrounded by dangerous neighbours, and preferred to take a hand in the game of politics, with the result that after much unsuccessful and expensive fighting they concluded a peace which left Hyder Ali deeply offended, and the Mahrattas more than ever masters of the situation. When Hyder Ali had been utterly defeated by the Mahrattas in 1771, he applied for help to the English, who refused, and thereby increased the resentment of their most dangerous neighbour in the Peninsula.

At the time when Warren Hastings took up the Governorship of Bengal the Seven Years' War had come to an end, and the French had been fairly beaten out of India; and, in fact, since 1763 no European rival has seriously interfered with us on Indian soil. It is a remarkable coincidence that the chronic invasions of India from Central Asia, which had for several centuries caused so many dynastic revolutions in the north, ceased at the same epoch, for the Afghan king Ahmed Shah retired finally behind the Indus in 1763; that from that date we may reckon the commencement of an era during which the frontiers of India by land and sea were closed to all foreign powers except England. And we can now perceive clearly enough that so soon as the gates of India had been shut in the face of all other maritime nations, our exclusive right of entry upon a vast arena occupied only by

a number of loose disorderly rulerships, offered great and tempting facilities to the unlimited expansion of our dominion. There is ample evidence that the probability of the acquisition of all India by some European power was clearly observed by competent observers who stood on the threshold of the period, stretching over a hundred years from the battle of Plassy to the great Mutiny in 1857, during which all those strides of conquest were made which have carried us from the seaboard to the Himalayas and the Afghan frontier. To quote only one well-known instance, Lord Clive foresaw in 1765, and plainly warned the East India Company, in a letter that has been often quoted, that they were already on the straight road to universal dominion in the country.

The internal condition of Bengal and Behar when Warren Hastings assumed charge of the Presidency at Calcutta was exceedingly bad. There was no real government in the district, for all power was concentrated in the hands of the Company's representatives, who received the revenue and maintained their own troops; every kind of fraud upon the revenue and extortion was practised by a crowd of native agents, who pretended to act under the English name and authority; while the contrast between the inordinate profits to be made in trade monopolies, and the trifling salaries paid by the Company, had demoralised the whole English service.

The country was without a sovereign; there was no power that accepted the duty of making laws and enforcing them. The Company had indeed made up their minds at last 'to stand forth as Dewan,' that is, to appear as controllers and administrators of this revenue; but all the work of keeping down crime and punishing it was still committed to the native officials, who had lost all power and independence.

The first appointment of an Indian Engineer officer appears to have been in the year 1748, when three companies of Artillery were raised for service in India, the command of all the three

companies being vested in an officer with the title of Captain and Chief Engineer. Captain Alexander Delavaux (No. 1 on the Madras List) was probably the first to hold this appointment, followed by Benjamin Robins, who was succeeded in 1753 by Lieutenant-Colonel F. C. Scott, who had previously been employed in engineering duties in Flanders during the French war. The Madras Engineers date from January 1759, when a small permanent corps of four officers (1 captain, 1 captain-lieutenant, 1 lieutenant, and 1 ensign) was established. The Bengal corps, according to Broom's 'Rise of the Bengal Army,' dates from 1761, when the establishment consisted of only three officers.

We find from the Roll of the Corps that the first officer on the list of Bengal Engineers is Captain John Brohier, who was appointed from Madras as Chief Engineer in June 1757. The second officer on the list is Captain-Lieutenant Anthony Polier, whose commission in that rank is dated December 30, 1763, who served at Chunar in 1764, where he was killed. Major Lewis Fox Dugloss, whose regimental commission as captain dated February 1764, also served at Chunar in 1765 and at Buxar in 1764.

Major James Rennell, whose name is seventh on the Corps Roll, served as midshipman at St. Malo in 1758, and at Cooch Behar in 1766, and Captain William Richards also served in the latter country. Major Rennell, whose name forms the subject of a biographical notice in this book, after his brilliant services as Surveyor-General in India, retired from the service and became President of the Royal Geographical Society, F.R.S., and member of many learned societies. He was the author of the 'Geography of Herodotus' and many other scientific works, and his life has been written by Sir Clements Markham, K.C.B., now President of the Royal Geographical Society.

We next come to Major-General Sir Archibald Campbell, K.B., whose services extend over a great portion of the last half of the eighteenth century, and who afterwards became Commander-in-Chief in India. This most distinguished officer resigned the

British Engineers in 1771 and was appointed to the Bengal Engineers as Lieutenant-Colonel on September 1, 1768. This book contains a short biographical notice of his services, which comprised Guadalupe 1759, Malaga 1759, Dominica 1760, America 1776 and 1778-79.

Another distinguished officer, Lieutenant-Colonel Henry Watson, was also transferred from the British Engineers and served at Belleisle in 1761 and at Havanna in 1762. He resigned the service in 1786, and died at Dover in the same year. It is hoped to enumerate the services of this officer, and also of Colonel Sir Mark Wood, Bart., in a second volume of this book. Lieutenant-General William Nevill Cameron was appointed to the corps as Ensign in 1875, and attained the rank of Colonel in 1896. He was present at the Rohilla War, 1774; the Mahratta Wars of 1776–77 and 1779–80; Malwa, 1880–81, and in the Mahratta War of 1784. He retired in 1808 as Lieutenant-General and died at Bath in 1837.

Lieutenant-General Kyd also entered the service in 1775, and became Colonel in 1805. He served at Mysore in 1791–92. He was afterwards Chief Engineer at Calcutta, and built the Government Dockyard at Kidderpore, which was named after him, and effected great improvements to the town of Allahabad, and the suburb of Kydgunge is named after him. He was the author of 'Tidal Observations in the Hooghly.' He became Lieutenant-General in 1819 and died in London in 1826. Lieutenant Patrick Stewart entered the corps in 1782 and served at Mysore 1791–92, and at the Siege of Seringapatam, where he was killed.

Lieutenant Joseph Stokoe and Captain James Tillyer Blunt also served in Mysore in 1791–92, and the latter was present at the Siege of Seringapatam and in Cuttack in 1803–5. . . . In a work of this description it is impossible to give more than a brief summary of the services of some of the older officers of the corps in the last century. The first augmentation to the corps seems to have been in September 1781, when six ensigns were promoted to be lieutenants.

MAJOR-GENERAL SIR ARCHIBALD CAMPBELL, K.B.

Was gazetted Practitioner Engineer and Ensign on February 8, 1758, and promoted Sub-engineer and Lieutenant on March 17, 1759. Between the years 1758 and 1762 he was employed in three expeditions to the coast of France, and in the West Indies at the capture of Guadalupe, Dominica, and the neighbouring islands. In 1763 he was promoted to the grade of Engineer Extraordinary and Captain-Lieutenant. In 1767 he was sent to the East Indies, where he served as Chief Engineer of Bengal till 1775, with the local rank of lieutenant-colonel. On April 1, 1771, he, in company with other Engineers who were stationed in India, was removed from the home establishment and transferred to the books of the East India Company. His career as an Indian Engineer was a brilliant one, and gained him a high reputation. Fort William, the citadel of Calcutta, was constructed from his designs, as well as several other important works. During this time he was enabled, like so many others, to amass considerable wealth, with which he returned home in 1773, and henceforward his connection with the Engineers entirely ceased.

He went into Parliament as member for the Burghs of Stirling in 1775. On the outbreak of the American Rebellion, he raised at his own expense a regiment of Light Infantry, which was named the 21st regiment of Highlanders, and of which he was appointed Lieutenant-Colonel.

He set sail with his regiment in May 1776. The calamity which then befell him may be best given in his own words, in a report to General Howe, dated June 19, 1776:—

'On the 16th June the "George" and "Annabella" transports, with two companies of the 71st regiment of Highlanders, made the land of Cape Anne after a passage of seven weeks from Scotland, during which we had not an opportunity of speaking to a single

vessel that could give us the smallest information of the British troops having evacuated Boston. On the 17th, at daylight, we found ourselves opposite to the harbour's mouth of Boston, but from contrary winds it was necessary to make several tacks to reach it. Four schooners, which we took to be pilots or armed vessels in the service of his Majesty (but which were afterwards found to be four American privateers of eight carriage guns, twelve swivels, and forty men each) were bearing down upon us at four o'clock in the morning.'

Then follows a short description of the engagement, at the close of which the enemy bore away.

'As my orders were for the port of Boston, I thought it my duty at this happy crisis to push forward into the harbour, not doubting I should receive protection.' . . . 'As we stood up for Nantucket Roads an American battery opened upon us, which was the first serious proof we had that there could scarcely be many of our friends at Boston, and we were too far embayed to retreat.'

The four vessels that had attacked them in the morning, with the addition of two others, now once more engaged them:

'Although the mate of our ship and every sailor on board, the captain only excepted, refused positively to fight any longer, I have the pleasure to inform you that there was not an officer, non-commissioned officer, or private man of the 71st but what stood to their quarters with a ready and cheerful obedience.' The fight went on till all their gun ammunition was exhausted, when they were compelled to surrender. He concludes his letter by dilating upon the good treatment and civility shown him by the people in power in Boston. This, however, did not last long, for on February 14, 1777, he addressed a letter to Sir William Howe, in which he gives a piteous description of the treatment he was receiving in the common gaol of Concord—'because his Excellency had refused to exchange General Lee for six field-officers, of whom I happened to be one, and that your Excellency had put that officer under custody of the provost.' As a matter of fact, General Lee

was to have been tried and executed as a deserter, and the ill-treatment of Campbell and others was the consequence. The upshot was that Lee was eventually placed in the position of a prisoner of war, and the rigour of Campbell's treatment much mollified. He was at length exchanged, and arrived in New York in May 1778.

In the winter of that year he was placed in command of an expeditionary force for the conquest of Georgia. In this he was completely successful; the enemy was drawn out, and the province occupied within three months.

In 1780 he was appointed Lieutenant-Governor of Jamaica, and two years later Captain-General and Commander-in-Chief of the island. Here he performed his functions so much to the satisfaction of the inhabitants that on his departure he was presented with a very handsome service of plate. In 1785 he was appointed Governor of Madras.

'This day, October 17, General Campbell set sail from this port in the 'Earl of Talbot' Indiaman, for the government of Madras.'[1]

Prior to his departure his Majesty created him a K.B. He remained at Madras until 1789, when he resigned the government on account of ill-health. He had, in fact, never recovered the rigorous two years' confinement when a prisoner of war in America. This, however, was probably not the only cause of his return home, for we read in the 'Gentleman's Magazine:'

'Sir Archibald Campbell arrived in the 'Manship' Indiaman on June 18, off the Lizard. He sailed from Madras on February 7. . . . The dissension which has for a long time subsisted between Earl Cornwallis and Sir Archibald Campbell is the cause that the latter resigned a situation which he could not honourably hold consistent with his own feelings.'

His term of government seems on the whole to have been a very brilliant one.

[1] *Gentleman's Magazine*, 1785, p. 829.

'To protect a weak and extensive frontier, to discipline a detached army, and to provide resources in a lately desolated country, fell to the lot of Sir Archibald Campbell. Skilled in every branch of military science, with knowledge matured by experience in various countries and climates, indefatigable in all public duties, and endued with a degree of worth and benevolence which attached him to all ranks in the army, and excited voluntary exertion in every officer to second the zeal of his general, he had a task to perform which, though great and complicated, was not beyond the reach of such distinguished talents. Granaries were established on the frontier and other stations in the Carnatic, containing supplies for nearly 30,000 men for twelve months, and furnished in such a manner as to provide against the exigencies of famine or of war, without incurring additional expense to the public; a complete train of battering and of field artillery was prepared, far surpassing what had ever been known upon the coast; a store of camp equipage for an army of 20,000 men was provided; the principal forts were repaired and more amply provided with guns and stores; the cavalry were with infinite difficulty completed to their full establishment, and a general uniformity of discipline and movement was established in the cavalry, the artillery, and the infantry. During the government of Sir Archibald Campbell the revenues of the Presidency of Fort St. George, including the acquisition of the Guntoor circar and the additional subsidy from the Nabob of Arcot, were increased from 960,000*l.* to 1,400,000*l.* a year. . . .'[1]

On his return to England he met with the most flattering reception from the King, and was at once re-elected M.P. for the Stirling Burghs. In 1790, when a rupture with Spain appeared imminent, the Government consulted him in the most confidential manner as to the organisation of the army, and offered him its chief command. This, however, he was compelled to decline, as his health had completely broken down.

[1] Dirom's *Narrative of the Campaign in India*, 1793.

MAJOR JAMES RENNELL, F.R.S.

On March 31, 1791, he died at the age of fifty-two, and was decreed a public funeral in Westminster Abbey.

'The procession consisted of twelve porters on horseback, a plume of feathers, a hearse drawn by six horses, and fourteen mourning coaches, drawn each by four horses, and the chariot of the deceased. The pall-bearers were the Duke of Argyle, Earl Stanhope, Viscount Stormont, Lord F. Campbell, Sir W. Fawcett, and Mr. C. Campbell. . . .'[1]

A monument was erected over his remains in the north aisle of Westminster Abbey.[2]

MAJOR JAMES RENNELL, F.R.S.

Was born at Waddon, December 3, 1742. He was descended from an old Devonshire family originally spelling their name Regnell, and living near Chudleigh in Devonshire. His father, John Rennell, of Waddon and Upcott, Devon, was a captain of Artillery. He was killed in 1747 or 1748 in one of the campaigns in the Low Countries between the Allies commanded by the Duke of Cumberland and the French under Marshal Saxe and Louis XV. The young James Rennell was but five years old when thus deprived of his father, and was committed to the care of a cousin, Dr. Rennell, Rector of Drewsteignton, Devon (grandfather of Dr. Rennell, Dean of Winchester), who showed him a paternal kindness, and used in his old age to say of his distinguished relative, with a just pride, 'I taught the boy to read.' In 1756, at the age of fourteen, he entered the Navy, and served in the 'Brilliant' frigate, Captain Hyde Parker, which took part in the attack on Cherbourg, August 6, 1758. He also served with much distinction, for so young a man, in several desultory expeditions at that time carried out against the French. His

[1] *Europ. Mag.* 1791, p. 319.

[2] From Porter's *History of the Corps of Royal Engineers.*

surveying powers were even at that early period called into action, as there still exists a plan of the Bay of St. Cast which bears the inscription, 'To the Right Honourable Lord Howe this plan is dedicated by his obedient humble servant J. Rennell, 1758.' At the Siege of Pondicherry in 1761 he gained much credit for his active assistance in cutting out some French men-of-war from the roads in the night. The 'Annual Register' of 1830 relates the following anecdote of him:—

'On October 6 an expedition was organised for cutting out a large French frigate and an Indiaman at anchor under the guns of Pondicherry. Two attempts had already been made. This time two armed boats were told off from every ship in the fleet, which was then at anchor at Cuddahar, about eighteen miles to the south of Pondicherry. The boats started at sunset and rowed all night. Young Rennell was selected as a volunteer in the division commanded by Lieutenant Ouvry. Both the ships were at anchor within half a musket shot of the town, and in such a position as to receive protection from the bastions. At about two in the morning the English sailors boarded and cut the cables, and at the same moment the garrison was alarmed, and soon a furious cannonade began from every gun on the walls of Pondicherry that could be brought to bear on the two ships. The ship which Rennell boarded had no sails bent, and was exposed to the fire of the enemy for a full hour, until she could be got ready for sea. Yet the whole British loss was only eight killed and thirty wounded. The frigate was called the 'Baleine,' and was soon afterwards put in commission. The Indiaman, named the 'Hermione,' was in ballast.

In 1760 young Rennell went to the East India station. He soon mastered the theory and practice of marine surveying, and on account of his proficiency Parker lent his services to the East India Company. He served for a year on board one of the Company's ships bound to the Philippine Islands with the object of establishing new branches of trade with the natives of the

intervening places. During this cruise Rennell drew several charts and plans of harbours, some of which have been engraved by Dalrymple.

At the end of the Seven Years' War there appeared to be no chance of promotion for a youth without interest. So, acting upon his captain's advice, Rennell obtained his discharge from the Navy at Madras, and applied for employment in the East India Company's sea service. He at once received command of a vessel of two hundred tons, but she was destroyed by a hurricane in Madras Roads, in March 1763, with all hands. Fortunately her captain was on shore, and he was at once appointed to command a small yacht called the 'Neptune,' in which he executed surveys of the Palk Strait and Pamhen Channel. His next cruise was to Bengal, and he arrived at Calcutta at the time when Governor Vansittart was anxious to initiate a survey of the British territory. Owing to the friendship of an old messmate, who had become the Governor's secretary, Rennell was appointed Surveyor-General of the East India Company's dominions in Bengal, with a commission in the Bengal Engineers, dated April 9, 1764. He was only twenty-one years of age when he met with this extraordinary piece of good fortune.

Rennell's survey of Bengal, which was commenced in the autumn of 1764, was the first that was ever prepared. The headquarters of the Surveyor-General were at Dacca, and in the successive working seasons he gradually completed his difficult, laborious, and dangerous task.

In the cold season of 1776 Rennell extended his operations to the frontier of Bhootan, where he met with a most serious accident, being so desperately wounded that his life was despaired of, and his constitution was permanently injured. The Sanashi Fakirs, part of a fanatical tribe, were in arms to the number of eight hundred while he was engaged in surveying Baar, a small province near the Bhootan frontier. They had taken and plundered a town within a few miles of the route of the surveyors,

and Lieutenant Morrison was sent against them with ninety Sepoys. Morrison had been a midshipman on board the 'Medway' when Rennell was in the 'America,' and they went out to India in company. As soon as he heard that his old naval friend was on this service, Rennell at once set out to join him, and came up with him after he had defeated the Sanashis in a pitched battle. His detachment being tired out rested on the ground that night. Although Rennell was senior to Morrison, as his friend had been entrusted with the duty, he chose to serve under him as a volunteer rather than interfere with his command. Next morning they all marched in search of the enemy. After a fatiguing and tedious movement, by which they hemmed in the Fakirs between the forks of the Brahmapootra, they found it necessary to reconnoitre a village on their road, although they had no expectation of any hostile force being there. But they were soon undeceived on finding themselves in front of two lines of the enemy drawn up in the market-place. Their escort of a few horse rode off, and the enemy, with drawn sabres, immediately surrounded them. Morrison escaped unhurt, Richards received only a slight wound and fought his way out. The Sepoy adjutant was badly wounded, but got off. Rennell's Armenian assistant was killed. He himself was so completely surrounded that he had little prospect of escaping. His pistol flashed in the pan. He had only a short sword, and with that he kept retreating backwards until he thought he had few of the enemy behind him; he then turned and ran for it. One of the Fakirs followed him a little way, but paid the price of his life. The rest thought that he was too badly wounded to run far, but kept up a constant fire upon him all the time he was in sight. Rennell soon found himself fainting through loss of blood, and the remainder of the detachment coming up he was put into a palanquin. Morrison then made an attack on the enemy, and cut most of them to pieces.

Rennell was in deadly peril. He was deprived of the use of

both arms, and the loss of blood threatened immediate death. One stroke of a sabre had cut his right shoulder-blade through, and laid him open for nearly a foot down the back, cutting through or wounding several of the ribs. He had, besides, a cut on his left elbow, a stab in the arm, and a deep cut over the hand, which permanently deprived him of the use of a forefinger. There were some other slight wounds, and a large cut across the back of his coat was found when it was taken off. It was, fortunately, a thick regimental coat, but if he had happened to be wearing his usual thin clothing this cut would probably have terminated his existence.

There was no surgeon nearer than Dacca, so he had to be taken for three hundred miles in an open boat, which he had to steer himself while lying on his back, while the natives applied onions as a cataplasm to his wounds. He was six days in the boat, and when he arrived, and for many days afterwards, he was entirely given up by the surgeon. By very slow degrees he recovered the use of his limbs, and by the end of May his wounds were healed, but he never had the perfect use of his right arm again, or of the forefinger of his left hand, while the loss of blood permanently injured his constitution. 'My companions,' he wrote, 'thought it almost miraculous that I have escaped so well, and I am very thankful that I am not entirely deprived of the use of my right arm, the provider of my daily bread.'

In consequence of this serious accident Lord Clive ordered that in future the Surveyor-General should be attended by a company of Sepoys. During the year 1766 Lord Clive kept Rennell very busily employed on his own affairs as well as on the public service. He encouraged him to complete the general survey and map of Bengal, communicated to him all the materials that could be found in the public offices, furnished him with a proper establishment, and gave him all the assistance in his power. Finally, Lord Clive created for him the office of Surveyor-General, with the rank of Captain of Engineers. Rennell prepared

for the Governor a map of Bengal, Behar, and Orissa, and of the Mogul Empire as far as Delhi, as well as a chart of the Ganges, which was sent home for the use of the historian Orme, who wrote such an admirable account of the early achievements of the English in India.

Among his eager fortune-seeking countrymen of the last century in Bengal, Major James Rennell stands forth as a unique figure—a calm disinterested man of science. Fortunate in quickly seeing service he still more distinguished himself by a habit of drawing plans of whatever action his ship was engaged in, and of the ports which she visited. When the Peace of Paris in 1763 seemed to end his chances in the British Navy, he entered the East India Company's fleet. In the following year he received an ensign's commission in the Bengal Engineers, and was appointed Surveyor of the Company's dominions in Bengal. In that position he remained, without seeking promotion or concerning himself in money-making, throughout his thirteen years of Indian service. Indifferent to the vanities of social life, he kept a staff of draughtsmen in Calcutta, but buried himself in the recesses of Eastern Bengal to be near the centre of his work. Year after year he studied the great river-systems, in which he discovered the key to the geography of the country. He watched their behaviour in the mighty floods of each rainy season, measured the new silt islands which they deposited, and mapped out their altered courses in the dry weather, until he wrested from them their secrets as land-makers and land-destroyers—at once the waterways, the soil carriers, and the race dividers of Bengal. On his labours our knowledge of the country rests. After his return to England in 1777 they won for him the highest rank among men of science. Still refusing offers of advancement, he quietly went on with his work until extreme old age, content, in the words of the President of the Royal Geographical Society, to be 'the leading geographer in England, if not in Europe, for a period of fifty years.' Rennell now divides his scientific supremacy with d'Anville of France and

Ritter of Germany, but enjoys an undisputed pre-eminence for many-sidedness gained by practical work as a sailor, explorer, and surveyor on land and on sea.

His researches extended over the whole world and throughout all time;—from 'The Geography of Herodotus' to 'The Retreat of the Ten Thousand;' St. Paul's shipwreck and the topography of Babylon and Troy, to the Delta of the Ganges, the mountains of the Himalaya, the Gulf Stream and Arctic currents, the Niger Valley and Central Africa. It was he who worked out the geographical interpretation of Mungo Park's travels. All the honours of science, from the Copley Gold Medal of the Royal Society to Baron Walckenaer's magnificent *éloge* before the French Academy, Rennell reaped. For other distinction he cared nothing.

In 1761 Major Rennell became engaged to Jane Thackeray, the sister of William Makepeace Thackeray, Factor and Fourth in Council at Dacca, and grandfather of William Makepeace Thackeray, the great author and novelist. The year of her arrival with her brother and sister at Dacca, however, nearly proved to be the year of his death. The task of surveying Bengal had to be carried out amid dangers from river-pirates, herds of trampling elephants, and roaming hosts of banditti, the fierce remnants of the native armies. On one occasion Rennell saved himself from the spring of a leopard only by thrusting a bayonet down its throat.

The Government of Warren Hastings granted him a pension, which the East India Company somewhat tardily confirmed. The remainder of Rennell's long life was devoted to the study of geography. His 'Bengal Atlas' was published in 1779, and was a work of the first importance for strategical as well as administrative purposes. He was elected a Fellow of the Royal Society in 1781, and took up his residence in Suffolk Street, near Portland Place, where his house became a place of meeting for travellers from all parts of the world. His second great work was the

construction of the first approximately correct map of India. It was accompanied by a memoir containing a full account of the plan on which the map was executed, and of his authorities. The first edition was published in 1783; the third, with both map and memoir considerably enlarged, in 1793. In 1791 Rennell received the Copley medal of the Royal Society; and from this time he was frequently consulted by the East India Company on geographical questions.

After the completion of the map of India, Rennell gave his attention to comparative geography, and conceived a comprehensive scheme for a great work on Western Asia. His 'Geography of Herodotus,' which occupied him for many years, only formed a part of his whole project. It was published in two volumes, a monument of laborious research and acute and lucid criticism. Sir Edward Bunbury recorded his opinion that Rennell's 'Herodotus' remains of the greatest value. In 1814 Rennell published his 'Observations on the Topography of the Plain of Troy,' and in 1816 his 'Illustrations of the Retreat of the Ten Thousand;' while after his death his daughter published two volumes entitled 'A Treatise on the Comparative Geography of Western Asia' (London, 1831), with atlas, which may be looked upon as the great geographer's workshop, displaying his critical methods and his treatment of the materials he collected.

Rennell gave much of his attention to the geography of Africa, and among other results of his researches he has the merit of having first established the true view of the voyage of Hanno and its northern limit. In 1790 he constructed a new map of the northern half of Africa for the African Association, accompanied by a very able memoir on the materials for compiling such a map. On the return of Mungo Park in 1797, all his materials were placed in the hands of Rennell, who worked out the ardent young traveller's routes with great care. The geographical illustrations were published, with a map of Park's route, which was afterwards used to illustrate Park's book.

Rennell was before all things a sailor. He never forgot that he had been a surveying midshipman. He showed this in the enormous amount of labour he devoted to the study of winds and currents, collecting a great mass of materials from the logs of his numerous friends, and prosecuting his inquiries with untiring zeal. About 1810 he began to reduce his collections to one general system. His current charts of the Atlantic and his memoir were completed, although they were not published, in his lifetime. He was the first to explain the causes of the occasional northerly set to the southward of the Scilly Islands, which has since been known as 'Rennell's Current.' He read two papers before the Royal Society on this current on June 6, 1793, and April 13, 1815. He was offered the post of first Hydrographer to the Admiralty, but he declined it because the work would interfere with his literary pursuits. Among minor publications Rennell wrote papers in the 'Archæologia,' on the Ruins of Babylon, the Shipwreck of St. Paul, and the Landing of Cæsar. After the death of Sir Joseph Banks, Rennell was for the next ten years the acknowledged head of British geographers. Travellers and explorers came to him with their rough work. Projects were submitted for his opinion, and reports were sent to him from all parts of the world.

The 'Penny Cyclopædia,' in an able notice of him, says: 'The merits of Major Rennell as a laborious investigator and an acute critic are universally acknowledged. Love of truth, patient and persevering research, and sound judgment, are eminently displayed in all that he did. It is a matter of surprise, with the limited means at his command, that he accomplished so much in his department of comparative geography. A mere list of the works published by him during his life, or after his death by his daughter, would show the wonderful amount of labour and research bestowed upon geographical questions by him. Till his time, England could hardly have been said to possess any great geographer.'

In an obituary notice the 'Times' said :—

'. . . . But there was still another quality which more peculiarly marked his writings, and which cannot be too much held up for imitation: the ingenuous candour with which he states the difficulties he could not vanquish, or acknowledges the happy conjectures of others. Those who have studied his "Geography of Herodotus," and followed under his guidance the "Retreat of the Ten Thousand," will have felt how much this quality augments the value of his reasoning.'

When upwards of eighty-seven years of age, Rennell slipped from his armchair and broke his thigh. He hardly left his bed again, and died March 29, 1830. He was buried at Harrow, and a tablet to his memory, with a bust, was erected in Westminster Abbey, in the north-west angle of the nave. An excellent porcelain medallion of him was executed in Paris in 1826, and is now in the South Kensington Museum.

[*Major James Rennell and the Rise of Modern English Geography*, by Sir Clements Markham; Porter's *History of the Royal Engineers*; *Dictionary of National Biography*.]

SECOND PERIOD: 1800–1850

The Mahratta War, 1803–4—The Nepal and Pindaree Wars—The First Burmese War, 1824–26—Siege of Bhurtpur, 1825–26—The War in Rajputana in 1834–35 and the Campaign in Afghanistan in 1838–42—The Battle of Maharajpore, 1843—The War in Scinde, 1843–44—The Sutlej and Punjab Campaign of 1845–46 and 1848–49—Augmentation of the Corps of Bengal Engineers.

Biographical Notices of Lieutenant-General Richard Tickell—Major Carmichael Smyth—Colonel John Colvin—Lieutenant-Colonel Archibald Irvine—Captain Joseph Davey Cunningham—Lieutenant James Sutherland Broadfoot, and Lieutenant-Colonel George Thomson.

THE first quarter of the nineteenth century was characterised by several important wars in India and on the Indian frontiers, and in the prosecution of these wars the officers of the Corps of Bengal Engineers took prominent parts.

In the Mahratta War of 1803–4 the officers engaged were: Captain James Robertson, who entered the service in 1782, and died in Calcutta in 1831; Lieutenant Thomas Wood, who became Lieutenant-Colonel in 1819 and died in Calcutta in 1834; Lieutenant Richard Tickell, who was present at the Siege of Bhurtpur in January 1805; Ensign Robert Smith, and Lieutenant Carmichael Smyth.

In the Nepal War of 1814–15, we again find the name of William Carmichael Smyth, who had by this time been promoted to the rank of Captain; Lieutenant Peter Lawtie and Lieutenant William Morrison, who died of wounds received in action in Nepal in 1814; and Lieutenant Edward Garstin, who afterwards became General and Colonel-Commandant, and was the first officer of the corps appointed to the latter rank.

Engaged in the Pindaree War of 1818–19 were eight officers: Lieutenant Cheape (afterwards General Sir John Cheape, G.C.B.), a notice of whose services is given in this volume; Lieutenant Richard Tickell, who afterwards became Lieutenant-General; Ensign William Hall, who died at Hussingabad, Nagpore, in December 1814; Captain Carmichael Smyth (his third campaign); Lieutenant Archibald Irvine (afterwards Lieutenant-Colonel and C.B.); Lieutenant E. Garstin; Ensign Edward James Smith (afterwards Lieutenant-Colonel and C.B.), and Lieutenant Thomas Warton, who died at Delhi in 1839.

The second Siege of Bhurtpur in 1825–26 employed the services of eight officers, viz. Lieutenant-Colonel (afterwards Major-General Sir Thomas) Anbury, K.C.B.; Lieutenant John Colvin, afterwards Colonel and C.B., and known as 'the Father of Indian Irrigation;' Lieutenant Archibald Irvine; Captains E. Garstin and Edward James Smith; Lieutenant Tindall, killed during the siege on January 1, 1826; and Lieutenant H. Goodwyn, afterwards General and Colonel-Commandant, who died at Bournemouth in 1886.

In the first Burmese War, 1824–26, the following officers took part: Captain Cheape; Lieutenant George Thomson, afterwards Lieutenant-Colonel and C.B. (see biographical notice); Lieutenant William Dickson, who died at Chittagong in September 1827; and Captain Frederick Abbott (afterwards Major-General Sir Frederick Abbott, C.B.).

It will thus be seen that as far back as 1818 Captain Cheape had made the commencement of a brilliant career, and that in the first Burmese War, 1824–25, he probably acquired that knowledge of campaigning in Burmah, which twenty-eight years afterwards proved so useful to him when in command of the army in the second Burmese War of 1852–53. On September 1, 1818, an augmentation was made to the corps, the increase consisting of two majors, four captains, and six ensigns; and in May 1824 ten engineers were promoted to be lieutenants.

The second quarter of the nineteenth century was also a

period of many Indian wars, of great magnitude and importance, in which many officers of the Bengal Engineers took part and performed distinguished service. In the Rajputana War of 1834, four officers were engaged, viz.: Captain Archibald Irvine, Captain Edward James Smith, Lieutenants Sanders and A. H. E. Boileau. Then there was the war in Afghanistan, 1838-42, with its disastrous retreat from Kabul, its illustrious defence of Jellalabad by Sir Robert Sale, and the capture of Kabul by Sir F. Pollock.

In this war twelve officers of the corps appear to have served, viz.: Captain Thomson, H. M. Durand, J. Laughton, and J. D. Cunningham, Frederick Abbott, J. L. D. Sturt, killed at the Tereen Pass in 1842; N. M. Macleod, Robert Pigou, killed in action at Kabul in 1841; J. Anderson, afterwards distinguished in the Mutiny; Lieutenant James S. Broadfoot, who was killed in a cavalry charge at Purwan; A. G. Goodwyn, and Major Edward Sanders, who was afterwards killed at the Battle of Maharajpore in 1844.

Lieutenant and afterwards Major-General Sir Henry Durand in this war made the commencement of his future brilliant career, and distinguished himself greatly by blowing in the gate of Ghuzni, an account of which exploit will be found in the notice of his services.

Captain Thomson was the officer who superintended the construction of the bridge by which the army crossed the Indus, and was Chief Engineer with Lord Keane's force.

The Gwalior War of 1843-44 requisitioned the services of seven officers: W. M. Smyth, Thomas Renny-Tailyour; H. M. Durand, Alexander Cunningham, C. B. Young, Stephen Pott, and a very distinguished officer, Colonel Edward Sanders, C.B., who had previously served with distinction in Rajputana and Afghanistan, and whose brilliant career was unfortunately cut short at the Battle of Maharajpore on December 29, 1843.

By an order of 1809 the captain-lieutenants were made

captains from January 1, 1806, and three officers were promoted in accordance with the order, viz.: Captain F. Willow, J. Agg, and J. Robertson. On May 1, 1822, ten Engineers were promoted to be lieutenants, and in September 1827 a large augmentation took place, eight officers being promoted to captains and seventeen Engineers to be lieutenants, among whom was Lieutenant R. Napier, afterwards Lord Napier of Magdala.

In May 1839, the corps received a further increase of three majors, six captains, and nineteen lieutenants; Captain Edward James Smith, afterwards Colonel and C.B., again was employed in Scinde in 1843-44 under Sir Charles Napier; also Captain William Abercrombie, afterwards Colonel, and Lieutenant Edmund John Brown, who died at Bombay in 1848.

The first Sikh War of 1845-46, which includes the battles of Sobraon and Ferozepore, was the first war in which a large number of officers of the Bengal Engineers was employed, no less than twenty-nine officers of the corps having been engaged in this campaign. The names of these officers were as follows:—Lieutenant-Colonels A. Irvine and E. J. Smith; Majors F. Abbott, W. Abercrombie, B. J. Reilly, Robert Napier (afterwards Lord Napier of Magdala); Captains Richard Strachey (now Lieutenant-General Sir R. Strachey, G.C.S.I.), Richard Baird Smith, A. D. Turnbull, A. G. Goodwyn, Joseph D. Cunningham (the historian of the Sikh Wars), Henry Yule, John Richard Becher, John Harley Maxwell, John Douglas Campbell, Edward John Lake, J. P. Beadle, W. A. Crommelin, J. E. T. Nicolls, G. P. Hebbert, C. T. Hodgson, Daniel G. Robinson, C. W. Hutchinson, Alexander Taylor (afterwards General Sir Alexander Taylor, G.C.B.), G. Sim, J. H. Dyas, Alexander Fraser (afterwards General and Colonel-Commandant), Henry Drummond, and George Hutchinson (afterwards Major-General, C.B. and C.S.I.).

It is much regretted that want of space would not admit of

detailed notices being given in this volume of all the above-named officers.

Biographical notices are given of Lieutenant-Colonel Irvine, Sir Frederick Abbott, Lord Napier of Magdala, Colonel Baird Smith, Captain J. D. Cunningham, Edward Lake, W. A. Crommelin, D. G. Robinson, and Colonel Joseph Dyas.

The second Sikh War, generally known as the Punjab War of 1848-49, which includes the Battles of Chillianwalah and Gujerat and the Siege of Mooltan, engaged the services of thirty officers of the corps, namely: Lieutenant-Colonel H. Goodwyn, Robert Napier, and Henry Durand; Captains W. A. Crommelin, G. W. W. Fulton (afterwards killed at Lucknow in 1857), Alexander Taylor, A. Fraser, C. S. Paton, T. G. Glover, H. Hyde, Ralph Young, Lieutenants R. Grindall (drowned at Attock in 1849), W. S. Oliphant, H. W. Gulliver (who afterwards commanded the Punjab Pioneers at the Siege of Delhi, and who died in London in 1896); Captains J. H. Western, H. Siddons, C. B. Young, Richard Baird Smith (afterwards Chief Engineer of the Delhi Field Force), A. G. Goodwyn, H. Yule,[1] W. E. Morton, John Harley Maxwell, E. J. Lake, Peter Garforth, C. Pollard, C. T. Stewart, F. R. Maunsell (afterwards General Sir Frederick Maunsell, K.C.B., and Colonel-Commandant), A. W. Garnett, Duncan Home (who afterwards obtained the Victoria Cross for blowing in the Cashmere gate at Delhi on September 14, 1857, and was killed at Malagurh by an accidental explosion in October 1858), and Lieutenant B. M. Hutchinson, who died of wounds received at the Battle of Gujerat.

These names include those of several officers who afterwards rose to great distinction both in civil and military departments, and in addition to the names previously mentioned biographical notices are given of Lieutenant-General Crommelin, Captain G. W. Fulton, Major-General Ralph Young, Captain A. W. Garnett, and Lieutenant Duncan Home, V.C.

[1] Afterwards Colonel Sir Henry Yule, K.C.S.I., C.B.

In February 1854 the corps received an augmentation of three captains and eight lieutenants, followed in September of the same year by a further augmentation of one colonel, two lieutenant-colonels, nine captains, and twenty lieutenants.

LIEUTENANT-GENERAL RICHARD TICKELL, C.B.

WAS appointed ensign in the Bengal Engineers on September 21, 1804, and served as a subaltern in the Mahratta War, 1804-6, and was present at the first Siege of Bhurtpur.

The general situation at the end of 1804 was this :—

Holkar, though defeated whenever he could be brought to action, still had a large force with him, principally, or almost entirely, horse. His capital, Indore, and the adjoining territory in Malwa, were occupied by the Bombay force, commanded by Major-General Richard Jones. The garrison left by General Lake in Rampoora had been well commanded,[1] and had kept open the line of the Bombay force, which was now moving to join the Commander-in-Chief.[2]

The Rajah of Bhurtpur having joined Holkar, his fortified capital as well as his other forts, such as Khamber, Wer, &c., served Holkar as pivots for his marauding operations and refuges in case of defeat.[3]

Major-General Wellesley in his instructions to Colonel Murray had forbidden him to engage in sieges while Holkar was still in the field, and in a letter to the Commander-in-Chief himself, dated May 27, 1804, General Wellesley strongly urged the necessity of giving 'this description of freebooter' no rest, but pressing him with one or two light corps until his force melted away. If the circumstances of the case justified a siege of Bhurtpur at all, it should at least have been undertaken with sufficient force and a

[1] By Captain Hutchinson, Bengal Artillery.
[2] It arrived at Bhurtpur, February 11.
[3] Wellington's *Despatches* (Owen's selection), 423.

proper equipment. The town has a perimeter of about five miles; it is surrounded by a great mound, rather than by walls, of mud; it had a wet ditch, and it stands in a plain which at that time was covered with pools of water.

It contained a numerous garrison, mounted a large number of guns on earthen bastions, and Holkar was under the walls with a large force.

The Commander-in-Chief commenced the siege on January 2, 1805, with 7,500 men all told. He had only six 18-pounders and eight 5½-inch and 8-inch mortars.[1] It was not till the 17th that he was reinforced by three battalions of Native Infantry.

There was scarcely any engineering equipment at all, and the Engineer branch of the service was represented by three officers only,[2] and those not of sufficient rank and experience to carry the necessary weight. Attached to the Engineers were three companies of Pioneers.

The army encamped near Bhurtpur on January 2, 1805, a battery was begun on the 5th, 700 yards from the Awah Gate. On the 8th a breach in the curtain, about 350 yards north of the gate, was pronounced practicable, 'having been viewed through telescopes.' On the 9th the enemy stockaded and built up the breach, and that night a storm was attempted and repulsed with a loss of 5 officers and 64 men killed; 23 officers and 364 men were wounded. No approaches of any sort had been made. On the 16th a second breach was made, about 150 yards south of the same gate. From the 17th the enemy were busy stockading the breach till the 20th, when a storm was attempted. This attempt cost the British 3 officers and 53 men killed, 15 officers and 477 men wounded. On this occasion it was intended to pass the wet ditch by portable bridges. The notable expedient had been

[1] Two 24-pounders and a scanty supply of ammunition were brought from Deig on January 14.

[2] Lieutenants Thomas Robertson, Thomas Wood, H. W. Carmichael Smyth. Lieutenants Tickell and William Cowper (Bombay) joined later.

adopted of sending three native troopers to ascertain the width of the ditch. They galloped to the edge, pretending to desert, viewed it, and reported it to be 28 feet wide. The bridges naturally turned out to be much too short, and the water being 8 feet deep, the stormers were helplessly massacred on the counterscarp.

On February 4, a month after the beginning of the siege, a parallel was at last opened. On the 6th the camp was shifted partly for sanitary reasons, partly because it was now intended to make a breach in another place. On the 11th a new breach was formed, about 150 yards north of the Awah Gate, but no trenches had as yet been made to conduct the stormers from the battery, which was 430 yards from the breach. By February 20, when the trenches had been made and the assault was delivered, the breach had been strongly entrenched.

On this occasion three columns were formed. One was to storm the Bhar Narayan Gate, a mile to the right of the breach, which was reported easy of access. Another was to clear the enemy from the glacis on the right of the breach; while the third was the real column of assault on the left.

Of these the centre column, under Captain Grant of the 86th, alone performed its task. It drove in the enemy and took his guns, eleven in number. The assault by the left failed. Of all the Europeans contained in it the companies of the 22nd alone responded to the order to advance. The other regiments, panic-struck by some idea of a mine, refused to advance, and not even the gallant example of the 12th Native Infantry, which, led by Colonel Don, planted its colours to the right of the breach, would induce them to move. This failure cost 1 officer and 156 men killed, 22 officers and 692 men wounded.

Next day the Commander-in-Chief addressed the troops on parade, in terms of affectionate regret, expressing his sorrow that by not following their officers they had lost the laurels which they had gained on so many occasions. He gave them the opportunity of retrieving their reputation by volunteering. Upon this every

man stepped forward. Lieutenant Templeton of the 86th offered to lead the forlorn hope, for which 200 men were selected, and a fresh storming party was organised for the same afternoon. But though this renewed attack was made with determined gallantry it met with no better success than the last, and, after a prolonged effort, had to withdraw with a loss of 9 officers and 101 non-commissioned officers and men killed, 25 officers and 730 men wounded.

LOSSES IN THE FOUR ASSAULTS OF BHURTPUR, NOT INCLUDING THE TRENCHWORK

	Officers		Men	
	Killed	Wounded	Killed	Wounded
First Assault . .	5	23	64	364
Second „ . .	3	15	53	477
Third „ . .	1	22	156	692
Fourth „ . . .	6	25	101	730
Total	15	85	374	2,263

With this attempt ended the active operations against Bhurtpur. On the night of the 22nd and 23rd the guns were withdrawn and the trenches abandoned. Next day the enemy triumphantly fired the batteries. On the 24th the army withdrew to a position six miles north-west of the city, covering the roads to Agra, Mattra, and Deig.

The causes of this disastrous failure, by which the army lost the services of more than 100 officers and 3000 men, out of a total effective of not more than 12,100 men, are sufficiently obvious. General Lake complained that 'neither the abilities, knowledge, nor experience of his Engineers were adequate to the occasion.'[1]

The journal of the siege records that on January 2, as the commanding officers of Artillery and Engineers were on their way

[1] Commander-in Chief to Governor General, July 1, 1805, *Repository*, v. 158.

to a first reconnaissance, they were overtaken by General Lake, who asked, 'Will the battery be ready to-night?'[1] and this impatient question gives the clue to the whole causes of the failure. The General was evidently totally ignorant of the requirements of a successful siege, and, having no officer of sufficient authority to obtain a hearing, wasted the lives of his men in attempting what, under the conditions, was impossible.

Tickell was promoted Lieutenant on May 10, 1807, and Captain in 1812. He served with distinction in the Pindaree War of 1818, and was promoted to be Major in 1827, and Lieutenant-Colonel in 1829.

He held many high posts in the Public Works Department, and was promoted to be Colonel in January 1834. He was made a C.B., and his subsequent promotions were to Major-General in 1844 and Lieutenant-General on November 11, 1851.

He latterly resided for many years at Cheltenham, where he was greatly respected by all who knew him. He died at Cheltenham on August 3, 1855.

MAJOR CARMICHAEL SMYTH

ARRIVED in Bengal February 1797, and was first employed in the expedition to the Philippine Islands. The expedition having been finally abandoned, he returned from Penang, and was afterwards employed under Colonel Kyd of the Engineers at Allahabad. In August 1803 he joined Lord Lake's army, and was present at the capture of Allygurh, the Battle of Delhi, Siege of Agra, and Battle of Laswaree. In May 1804 he accompanied a force against Rampoora, and then rejoined Lord Lake, who again had to form an army in October. Smyth was present at the Battle

[1] The officers' reply was, 'How is it possible?' to which the General rejoined, 'Then it shall be ready to-morrow night, and you must work harder, and get more men.' See Owen's *Selections*, 435, for Major-General Wellesley's opinion.

of Deig and the Siege of Deig, and was mentioned by the Commander-in-Chief in his despatches.

He was also present at the first Siege of Bhurtpur, the chief town and fortress of Bhurtpur state, situated on the high road between Agra and Ajmeer, 35 miles from Agra, and 117 from Jeypur.

The forts and ramparts were constructed in 1733 by Budan Singh. The fortress has played a prominent part in the history of the state.

Runjit Singh was one of the first of the chieftains to connect his interests with those of the British Government. At the commencement of the Mahratta War in 1803, a treaty was concluded with him by the British Government, as a consequence of which Lord Lake was joined by a Bhurtpur contingent of horse, which did good service at the Battle of Laswaree, and throughout the campaign against Scindia. For their services the British Government transferred to Bhurtpur five districts, yielding seven lakhs of rupees. But when war broke out with Holkar, the Rajah of Bhurtpur first attempted evasion, and then refused to send his contingent; and when the routed troops of Holkar were pursued to the plains of Deig, a destructive artillery fire was opened from the ramparts on the British troops. Thereupon Lord Lake attacked Deig and carried it by assault. Bhurtpur was then invested on January 2, 1805. The town was five miles in circumference, with a broad and deep moat filled with water. The garrison was very large; and the artillery at hand for breaching purposes bore no proportion to the defensive strength of the works. Four successive assaults were repulsed; and finally the British army, with a loss of 388 killed and 2348 wounded, was compelled to withdraw. Though victorious, the Rajah was evidently alarmed at the pertinacity of the assailants, and his success was followed by overtures for peace. Runjit Singh surrendered the fort, and agreed to expel Holkar from his territories. Runjit Singh died in 1805, leaving four sons.

In 1824 Balwant Singh, the third son of Runjit Singh, was the rightful heir to Bhurtpur; but his cousin, Durjan Sal, grandson of Runjit Singh, seized the fortress of Bhurtpur and imprisoned the heir in 1826.

An army of 25,000 men, well provided with artillery, led by Lord Combermere, marched against Bhurtpur. Notwithstanding the large force of artillery, the strength and thickness of the walls offered such resistance to the breaching batteries, that it became necessary to resort to mining. The mines were commenced on December 23, and sprung on January 17 following, when a sufficient breach was effected, and the fortress carried by assault on the 18th. Durjan Sal was made prisoner. Balwant Singh, then an infant, was placed in power, his mother acting as regent, and a political agent superintending affairs.

After the abandonment of the siege Smyth was appointed Garrison Engineer of Agra. In February 1806 he joined a detachment under Colonel Bowie in the Gohud district and directed the attack on Gohud. In 1807 he came to England on medical certificate, returned to India in 1810 as a captain, and proceeded on the expedition to Java in 1811. He was present at Weltervreden and Cornelis. After this he returned to Fort William, and then went as Field Engineer to Callinger, and was present at all the fresh operations under Ochterlony. He was mentioned in despatches for exemplary valour on February 2, 1812. Subsequently he was employed on surveys, and was then selected to proceed with a large division of the army, under Major-General Marshall, to Alwar, a strong hill fort west of Delhi.

In June 1815 he again returned to Agra, but in February 1817 was at the reduction of Fort Hattras. In 1817–18 he served with the Grand Army under Lord Hastings. Returning to Europe in 1820, after a very active service, he became Major on July 19, 1821, and in 1822 was appointed *pro-tem.* Resident Superintendent at the H.E.I.C. Military College, Addiscombe, with a salary of 600*l.* per annum. He retained the post only

until April 6, 1824, when Lieutenant-Colonel Robert Louis Houston, C.B., was appointed. No reason is given for his resignation, but it is more than likely that the cause was ill-health owing to his long-continued active services, as it may be supposed a man of his talents and experience must have been eminently qualified for the post.

Major Carmichael Smyth was married in 1818 to Anne, daughter of John Becher, Esq., and widow of Richmond Thackeray, of the Bengal Civil Service, Secretary to the Board of Revenue of Calcutta, and mother of the great author, and writer of 'Vanity Fair,' William Makepeace Thackeray.

On Major Smyth's return to England in 1820, Thackeray's guardian, Mr. Peter Moore, of Hadley Green, transferred William to his mother's care. Major Smyth was very proud of his step-son's intellect, and himself prepared him a great deal for his career at Cambridge. Mrs. Carmichael Smyth was a remarkable woman, of fine intellect and tastes, and imbued with that piety which her son so often describes in his work. After the death of Major Carmichael Smyth she lived chiefly with her son, who was her only child, and she had the great sorrow of outliving him, but not for long.

COLONEL JOHN COLVIN, C.B.

Was born August 20, 1794, appointed to the Bengal Engineers at the first public examination held at Addiscombe on December 22, 1809, being one of fourteen cadets who were appointed to the Indian Artillery and Engineers at that date. He served in the Pindaree War of 1818, and his meritorious conduct at the Siege of Mundela was noticed in the strongest terms in the Report by Major-General Marshall, dated April 30, 1818. His conduct was also noticed by the Governor-General in Council in General Orders dated June 18, 1818. In September 1820 he was ap-

pointed by Sir David Ochterlony to be Superintendent of Canals in the Delhi Territory, and it was in the superintendence, designing, and construction of the Ganges Canal that Colonel Colvin established a reputation of the first class as an Irrigation Engineer. He was detached for active service in the field in 1825–26, and served at the second Siege of Bhurtpur. He was afterwards again appointed to the Superintendence of the Canals in the North-West Provinces, and carried out great improvements in the system of irrigation at Moradabad. The Government of India addressed a letter to the Court of Directors, referring in the highest terms to the meritorious and able exertions of Colonel Colvin, which resulted in the success of the irrigation system pursued.

The Ganges Canal was the work of Colonel Sir Proby Thomas Cautley, Bengal Artillery, but it was first contemplated by Colonel Colvin, who directed Cautley to examine the project, but the results were so discouraging that it was temporarily abandoned. The severe famine of 1837–38 led to a re-examination, and Cautley reported on it in 1840. It was sanctioned by the Court of Directors in 1841.

The work on the Ganges Canal was commenced in 1843, and it was officially opened by the Hon. John Russell Colvin, then Lieutenant-Governor of the North-West Provinces, when water was first admitted, and since then it has flowed uninterruptedly.

The Ganges Canal had, in 1886, 445 miles of main line and 2250 miles of minor channels for the distribution of the water. The corresponding figures for the Lower Ganges Canal were 556 and 1889. The two canals had up to the year 1886 cost about 280 and 260 lakhs of rupees respectively. Their yearly returns in water rate and share of land revenue are about 33 and 19 lakhs, while the total revenue collected was 24 and 12 lakhs, showing a net return on capital expended of $8\frac{1}{2}$ and $4\frac{1}{2}$ per cent.

But in addition to this it must be remembered there is the value of the crops raised owing to the canal water, which

amounted to no less than 294 lakhs for the Ganges and 179 lakhs for the Lower Ganges Canal. Thus the older work pours more wealth into the country yearly than it cost to make it entirely. Colvin's furlough was extended to enable him to visit the system of irrigation in Lombardy. Colvin was promoted Lieutenant-Colonel on April 20, 1835, and was created C.B. at the Queen's coronation. He retired in September 1839, and was appointed Colonel on November 28, 1854.

LIEUTENANT-COLONEL ARCHIBALD IRVINE, C.B.

Lieutenant-Colonel Archibald Irvine, C.B., was born in the year 1797 in the parish of Westerkirk in Eskdale, Scotland, the locality which was also the birthplace of Telford. Having obtained a cadetship in the service of the Honourable East India Company he went to Addiscombe, where he passed through the customary routine course of instruction, and afterwards proceeded to Chatham, being one of the first of the East India Company's Engineer Cadets who had the advantage of practising siege operations and military manœuvres at that place.

In the year 1816 he landed at Calcutta as an Engineer Cadet, and from that period until his final resignation from the East India Company's service in 1847 Colonel Irvine's career was marked with a zeal, energy, and ability which merited and obtained the unlimited confidence of his superiors. It would scarcely be possible to detail all the varied services performed by him during this long period, but some of the principal may be mentioned. In 1819 he served at the Siege of Asseergurh, and was mentioned in despatches. In 1825 he was appointed Major of Brigade of the Engineer Corps before Bhurtpur, in the Siege of which celebrated fortress the junior officers of the Company's Engineers displayed so much skill and science that Colonel (afterwards Major-General) Sir Thomas Anbury, the commanding

Engineer, wrote to Major-General Sir C. W. Pasley, under whom they had received instruction at Chatham, conveying the highest commendation of their services.

It was at this siege that Colonel Irvine used on actual service the peculiar system of ventilating extensive shafts and galleries, previously adopted at Chatham, but unknown to the gallant defenders of the fortress, several hundreds of whom were killed by the explosion of the great mines which formed the breaches in its lofty walls, by means of which the place was eventually stormed. For his distinguished services on this occasion, where he was twice wounded, once very severely, Colonel Irvine received a brevet Majority, and was nominated a Companion of the Bath. In March 1835 he was appointed by the late Lord William Bentinck to fill the very important post of Stipendiary Member of the Military Board, and in September 1843 the Hon. W. W. Bird, Governor-General, on the recommendation of the Earl of Ellenborough, placed him at the head of the Marine Department in Calcutta, with the new designation of Superintendent of Marine. His services in this novel and very responsible position, in reforming and remodelling the department, were of a most important and valuable nature, and were recognised by the Governor-General and Court of Directors. On resigning this post in the early part of 1846 he tendered his services for the Army of the Sutlej, to which he was appointed Chief Engineer, and joined Viscount Hardinge's camp on the evening before the Battle of Sobraon. The following extract from the speech of the late Sir R. Peel in the House of Commons on April 2, 1846, announcing that victory, has reference to this circumstance :—

'He (Colonel Irvine) arrived on the night before the battle, and his grateful Commander thus spoke of him :—"Brigadier Smith, C.B., has made all the dispositions in the Engineering Department, which were in the highest degree judicious, and in every respect excellent. On the evening of the 9th inst. Brigadier

Irvine, C.B., whose name is associated with one of the most brilliant events in our military history (the capture of Bhurtpur), arrived in camp. The command would, of course, have devolved upon him, but with that generosity of spirit, which ever accompanies true valour and ability, he declined to assume it, in order that all the credit of the work he had begun might attach to Colonel Smith. For himself he demanded but the opportunity of sharing our perils in the field, and he personally accompanied me through the day."'

On the termination of the war in the Punjab Colonel Irvine resigned the service of the East India Company, on which occasion the Governor-General, Viscount Hardinge, thus expressed himself in an autograph letter:—

'Camp Phillour: March 22, 1846.

'My dear Colonel Irvine,—I cannot allow you to leave my camp on your journey homewards without expressing the regard and esteem I entertain for your personal character, and the strong sense I have of your public conduct and services.

'I have, in concurrence with my colleagues, conveyed to the Court of Directors my opinion of the ability with which you have presided over the Marine Department at Calcutta; your untiring zeal in enforcing, by your own example, the most strict performance of the public service; your unflinching integrity in superintending the interests of the East India Company; the scrupulous economy you have introduced in the naval expenditure, without any diminution of naval efficiency, can be proved by the fact that the saving during your administration has amounted to a lakh annually; and I am very glad that the attempt is to be made to replace you from England, as I should have had great difficulty in finding an adequate successor.

'Since you came up to the Army I have had occasion highly to approve of the zeal and intelligence you have displayed, and I am much obliged to you for the valuable collection of information you have so rapidly made of the capabilities for the defences of

Lahore, Umritsir, and Govind Ghur. Your retirement from the service of the East India Company is a great loss, in the maturity of your experience, and I hope I may add, whilst your health is good; but having determined upon taking that step, you have entitled yourself to the thanks of the Government, which I should be glad to convey to you in the strongest terms I can use in taking my leave of so deserving and patriotic an officer.

'It must ever be a source of satisfaction to you that you made the decision to move up to the Army, leaving your family to proceed to England without you, and that you were in time to take a part in the glorious and decisive victory of Sobraon. You will leave us, now that the campaign is over, with the honourable satisfaction of being esteemed by the Army, and of having acquired, in every department in which you have served, the confidence of your superiors and the respect of the public. I hope you will have a prosperous journey, and, after a well-spent life in India, enjoy a happy home in your native land.

'Ever, my dear Colonel,

'Yours with sincere regard,

(Signed) 'H. HARDINGE.'

Within four months of Colonel Irvine's return to England, the Earl of Auckland, then First Lord of the Admiralty, tendered him the situation of Director of Works to the Admiralty, the duties of which post he entered upon in November 1846 with his usual assiduity, and conducted to the entire satisfaction of the Board until his death in December 1849, which was occasioned by a severe fall at Portsmouth while in the discharge of the duties of his office. The Lords Commissioners of the Admiralty have placed upon record the following honourable tribute to his memory:—

'Admiralty: January 3, 1850.

'Read: the report of the death of Colonel Irvine.

'My Lords receive with deep regret this melancholy intelligence. With great professional knowledge there was combined in Colonel

Irvine so sound a judgment, and such earnest zeal for the public service, that my Lords were able on all occasions to rely with perfect confidence on his advice, and never ceased to congratulate themselves on the good fortune which had brought him into connection with this Department. In the daily experience of the efficiency with which the duties of his office were discharged, and of the economical spirit which he laboured everywhere to inculcate, and with so many proofs before them of the improvements which were in the course of being carried into effect, both at home and abroad, in the administration of the public works under his control, my Lords cannot but desire to put on record their deep sense of the value of Colonel Irvine's services, and their regret at the sudden close of his distinguished and honourable career.

'By command of their Lordships,

(Signed) 'J. PARKER.'

It only remains to add that Colonel Irvine was as estimable and beloved in private life as he was exemplary in the discharge of his professional duties. He was an affectionate husband, a fond parent, and a sincere friend; and the public service, his family, and friends must equally lament his loss. He became a Corresponding Member of the Institution of Civil Engineers in the year 1828, and during the long period of his services in the East had performed many of the engineering duties which devolve upon the military officers in that country; such as making a survey of the heads of the Nerbuddah and Mahanuddi Rivers, superintending the construction of churches at Cawnpore, and taking charge of the roads from Benares to Allahabad, &c. The experience gained from this, added to his great natural ability, peculiarly fitted him for the posts he afterwards held with so much credit at the head of the Public Works Department of the Admiralty.[1]

[1] From the *Annual Report* of the Institution of Civil Engineers; Hunter's *Imperial Gazetteer of India*.

CAPTAIN JOSEPH DAVEY CUNNINGHAM (1812–1851),

HISTORIAN of the Sikhs, eldest son of Allan Cunningham, the well-known poet (1784–1842), was born in Lambeth on June 9, 1812. He was educated at different private schools in London, and showed such aptitude for mathematics that his father was strongly advised to send him to Cambridge. But the boy wished to be a soldier; and, at his father's request, Sir Walter Scott secured him a cadetship in the East India Company's army.

He proceeded to Addiscombe, where his career was very brilliant, and he passed out of that college first, obtaining the first prize for mathematics, the sword for good conduct, and the first nomination to the Bengal Engineers in 1831. He then went to Chatham, where he passed through a course of professional training given to the young officers of the Royal Engineers, and where he received the highest praise from his instructors, Colonels Pasley and Jebb.

He sailed for India in February 1834 with strong letters of introduction to the many Scotchmen then filling high employment in India.

On reaching India he was appointed to the staff of General Macleod, then Chief Engineer in the Bengal Presidency, and in 1837 he was selected, entirely without solicitation from himself, by Lord Auckland to join Colonel (afterwards Sir) Claude Wade, Agent upon the Sikh frontier, as assistant, with the special duty of fortifying Ferozepore, the Agent's head-quarters. This appointment brought him into close connection with the Sikhs, and, as he spent the next eight years of his life in political employments in this part of India, he was able to obtain a thorough knowledge of their manners and customs, which makes his 'History of the Sikhs' one of the most valuable books, so far as their early history is concerned, ever

published in connection with Indian history. In 1838 he was present at the interview beween Lord Auckland and Runjit Singh, the great Sikh chieftain; in 1839 he accompanied Colonel Wade when he forced the Khyber Pass, and he was promoted First Lieutenant on May 20 in that year; in 1840 he was placed in charge of Loodiana under G. Russell Clerk, Colonel Wade's successor, and as Political Officer accompanied Brigadier-General Shelton and his army through the Sikh territory to Peshawur on their way to Kabul, and then accompanied Colonel Wheeler and Dost Mohammed, the deposed Ameer of Afghanistan, back to British territory. In 1841 he was sent on a special mission to the principality of Jammu; in 1842 he was present at the interview between Lord Ellenborough and Dost Mohammed and the Sikhs.

A letter from Francis Cunningham, brother to Joseph Davey, and to George Broadfoot, and addressed to the latter, dated Bangalore, May 27, 1843, says: 'Clerk recommended the Governor-General to appoint my brother (Joseph) to the charge of Khytul on 1200 rs., but Lord Ellenborough's answer was that Mr. Thomason considered Lawrence better fitted for it (they are old friends). The arrangement therefore now is, that Lawrence goes to Khytul on 1000 rs., and my brother takes Umballa, keeping his private secretaryship. This place pleases him more than the other, as it gives him equal pay, and in event of an officer being called upon for detached employment he is obviously the one to be sent, as he can best be spared. . . .'

In 1843 he was Assistant to Colonel Richmond, Mr. Clerk's successor, and in 1844 and 1845 he was Assistant to Major Broadfoot, C.B., Political Agent, and was stationed at the native state of Bahawalpore. These numerous appointments had made him thoroughly conversant with the Sikh character, and when the first Sikh War broke out he was attached first to the head-quarters of Sir Charles Napier in Scinde, and then to that of Sir Hugh Gough, the general commanding the army in the field.

Sir Hugh Gough, or rather Major Broadfoot, the chief Political Agent with the army, detached Cunningham to act as Political Officer with the division under the command of Sir Harry Smith, with whom he was present at the skirmish of Budiwal and the Battle of Aliwal.

When Sir Harry Smith joined the main army, Cunningham was attached to the staff of Sir Henry Hardinge, to whom he acted as additional aide-de-camp at the Battle of Sobraon. He was promoted Captain by brevet on December 10, 1845, and was on the conclusion of the war appointed by Sir Henry Hardinge Political Agent at Bhopal. Cunningham was thus singularly fortunate for so young an officer, and, having now comparative leisure, he devoted himself to historical research. His earliest works were chiefly connected with archæological and antiquarian studies, in connection with which his brother Major-General Sir Alexander Cunningham has become famous, but he soon settled down, at his father's recommendation, to write his great work, 'The History of the Sikhs.'

Joseph Davey Cunningham's talents early attracted the attention of Lord Auckland, anxious to select a young officer to train for the work of a Political Agent on the Sutlej frontier; and, without any solicitation on his part, he was appointed assistant to Colonel Wade, then in charge of the British relations with the Punjab, and the chief of Afghanistan. Holding that office, Cunningham was present at the interview which took place in 1838 between Lord Auckland and Runjit Singh.

In 1839 he accompanied Shahzáda Taimur and Colonel Wade to Peshawur, and he was with them when they forced the Khyber Pass and laid open the way to Kabul. In 1840 he was placed in administrative charge of the district of Loodiana; towards the end of that year he then, under the orders of Major (afterwards Sir) George Clerk, the Agent for the Governor-General, once more traversed the Punjab to Peshawur; during part of 1841 he was in magisterial charge of the Ferozepore district; and towards the

close of that year he was, on the recommendation of Mr. Clerk, deputed to Thibet to see that the ambitious rajahs of Jumna surrendered certain territories which they had severed from the Chinese of Shapa, and that the British trade of Ladakh was restored to its old footing. He returned in time to be present at the interview between Lord Ellenborough and the Sikh chiefs (December 1842). Appointed subsequently personal assistant to Mr. Clerk's successor, Colonel Richmond, and then employed on important duties in the Bahawalpore territory, Cunningham, very studious by nature and greedy of knowledge, was able to acquire a fund of information regarding the Sikhs unequalled at the time in India. It was by reason of this knowledge that, when the Sikh War broke out, Sir Charles Napier ordered him at once to join his army, then occupying Scinde.

For the same reason Sir Hugh Gough, after Ferozeshah, summoned him to join his headquarters; detached him to accompany Sir Harry Smith to Badiwal and Aliwal, and retained him near his person on the day of Sobraon.

Cunningham then had enjoyed peculiar opportunities of knowing the Sikhs. He had lived with them for eight years during a most important portion of their history. He had enjoyed intercourse, under every variety of circumstance, with all classes of men, and he had had free access to all the public records bearing on the affairs of the frontier. It had been one of his duties to examine and report upon the military resources of the country, and, being especially a worker, a man who, if he did a thing at all, could not help doing it thoroughly, he had devoted to the task all his energies and all his talents.

No one, then, was more competent than Cunningham to write a history of the Sikh people. Circumstances favoured the undertaking. As a reward for his services he had been appointed to the political agency of Bhopal in Central India. He found the life in that quiet part of the world very different from the all-absorbing existence on the frontier.

To employ the leisure hours forced upon him there, he conceived the idea, as he knew he had the means, of writing a history of the Sikhs. This intention he submitted to superior authority, and he certainly believed that his plan was not disapproved of. The work appeared in 1849 and was exceedingly well written.

The following extract from the 'Career of Major Broadfoot, C.B.,' by Major W. Broadfoot, R.E., refers to this work.

'In certain descriptions of the Battles of Mūdki and Ferozeshah it has been thought necessary to infer and assert treachery on the part of the Sikh leaders, Raja Lal Singh and Sirdar Tej Singh, to account for the success of the British, rather than, as would seem sufficient, to attribute it to the valour and self-devotion of our brave soldiers. The latter has, at any rate, the advantage of being a fact, whilst the former is an inference formed on no sufficient basis that we have been able to discover. It would have been, according to our ideas, natural enough in a Sikh historian to excuse failure by alleging treachery on the part of their leaders; yet the old Sikhs, immediately after the events, as is recorded by Colonel Lawrence, and some years later, as we can testify, never put forward any such accusation. They were not as a nation, and assuredly they had no cause to be, ashamed of the result of measuring their young strength with ours in its maturity. They have since, alongside of us and under our banner, given ample proof of steadiness in danger equal to that of any troops in the world.

'Now, whilst the men, the Khalsa, did not accuse their officers of treachery, the officers, on the other hand—and this seems a strong argument—did not, when we prevailed, claim any reward for supposed treacherous conduct. On the contrary, like their men, they were rather disposed to boast of their deeds.

'And further, it should be clearly understood, all assertion to the contrary notwithstanding, that the Khalsa was supreme throughout the campaign. The soldiers, through their punchayats,

ruled not only their officers, but the State. They could make war or peace. With the men unanimous, the leaders, even if so inclined, had no chance of employing successful treachery. They could gain over no serious number of the Sikh army with which, at the critical moment, they might desert to the British. As little did they dare at Ferozeshah to propose that the Sikhs should leave their entrenchments and fight the British in the open, or make any military movement which would have the effect of weakening the defence. In the temper of the men at the time, either proposal, or even a suspicion that either proposal was entertained, would have led to the prompt execution of the leader who had thus rendered himself obnoxious.'

The charge of treachery is repeated with much greater weight in Cunningham's 'History of the Sikhs.' Captain Cunningham appears to have based it, mainly on inference, thus: The destruction of the Khalsa army meant the salvation of the chiefs: the leader therefore desired nothing more than that the British should prevail, and consequently he saw in the conduct of the campaign what satisfied him of the treachery of Lal Singh[1] and Tej Singh.[2]

Against the former, in addition to what is inferred, it is stated in a note that 'it was sufficiently certain and notorious at the time that Lal Singh was in communication with Captain Nicolson, the British Agent at Ferozepore; but, owing to the untimely death of that officer, the details of the overtures made and expectations held out cannot now be satisfactorily known. Evidence, however, exists to show that Cunningham was mistaken in supposing that Captain Nicolson held out any expectations to Lal Singh.

Captain Nicolson was not the British Agent at Ferozepore, but the British Agent's Assistant, the British Agent being Major G. Broadfoot, and the Agent's assistants were not authorised to hold out expectations to Punjab chiefs, or to have political dealings

[1] Cunningham's *Sikhs*, p. 299. [2] *Ibid.* p. 304.

with them beyond referring them to the Agent, should any overtures be made.

Rajah Lal Singh, and no doubt others of the Sikh leaders, were sufficiently far-seeing to allow of the possibility of the defeat of their army by the British; and most of the chiefs would have wished, if possible, to provide against this event. One way of saving themselves, which would at once recommend itself to the Oriental mind, was to be able to show that as far as possible they had acted as friends to the English; and when they had done otherwise, that it was under compulsion. Such a negotiation had a double advantage. If the English, deceived by it, neglected any precaution and suffered defeat, then additional credit on behalf of the chief who organised the plan might be claimed. If, on the contrary, the English were victorious, then the vanquished leader might claim certain immunity from punishment, possibly reward.

In the letters and papers consulted by the editor of the 'Career of Major G. Broadfoot,' which were minute, and extended over a large area of documents, no evidence whatever of any such negotiation on the part of Tej Singh has been discovered.

On December 12, 1845, Rajah Lal Singh made overtures of the above nature to Captain Nicolson. They were such as he could at any time disavow under plea of compulsion. Nicolson, not having taken upon himself the responsibility of declining to discuss such a matter, reported the Rajah's proposals to Broadfoot on December 18, and before the letter could have arrived the action of Moodkee was fought. One expression in Nicolson's letter may be quoted as directly contradicting the insinuation that expectations had been held out to Lal Singh. It is as follows: 'I have made no terms with him, even personal!' . . .

Foiled in this instance, the Rajah once more attempted a similar negotiation, this time with Broadfoot himself, and immediately before the Battle of Ferozeshah. Broadfoot was killed within a few hours, and so left no record of the transaction; an

eye-witness, however, has described with what scorn and contempt he received the message, and the short and decisive answer he gave.

The following extracts from articles in the 'Calcutta Review' bear upon the subject, and are entitled to respect. One of the articles is known to have been written by the late Sir Henry Lawrence, and there is some probability that both articles proceeded from the same pen.

After pointing out the absurdity of some of the accusations made against the Sikh leaders, the reviewer remarks: 'All this talk of treachery tends to a wrong impression. No men could have exerted themselves more than did the majority of the Sikh generals; and even Tej Singh and Lal Singh, once engaged, had no choice but to fight. One proof that the chiefs did act honestly by their men *then* is that *now* they pretend to no credit for treachery, but rather boast of their prowess during the war.'

With reference to the assertion of treachery on the part of the Sikh leaders made in Cunningham's 'History,' the writer in the 'Calcutta Review,' who evidently wrote with cognisance of the facts, observed: 'It is obvious that Captain Cunningham has not penetrated the designs of the Sikh leaders. Their treachery was rather against than for us. That they pretended to serve us is true; but it is not true that they did serve us. . . .'

'On the 12th Lal Singh opened a communication with Captain Nicolson, making a merit of sending round the Sikh cavalry by Harike. As the first movement was to have been on Ferozepur, the cavalry would have been of little use; and Lal Singh was aware that by this step he was earning, or endeavouring to earn, the favour of the British at the smallest possible cost to the Sikhs. On the 19th, after the Battle of Moodki, Lal Singh's agent came to Major Broadfoot, and was dismissed with a rebuke.

'From that date to February 7 no communication of any kind was received from Lal Singh or Tej Singh. It is believed that the former sent Colonel Lawrence a sketch of the Sikh entrenchments at Sobraon; but our Engineer officers had gained by that time the information that we desired to possess, and the Sirdar's communication was of little or no value to us. Lal Singh was wounded at Ferozeshah; he was with the Sikh army after the defeat at Sobraon, and only quitted it after the arrival of the British at Lahore. We cannot perceive indeed that he threw any obstacle in the way of the Khalsa. . . .'

The treachery of Tej Singh is equally doubtful. This Sirdar is pronounced to be a traitor because he did not attack the British on December 22. But our army then had just beaten the Sikhs at Ferozeshah, and captured their camp equipage and eighty pieces of artillery. Flying from our attacking column, the routed Sikhs fell back on Tej Singh's force, and carried dismay into its ranks. Had he known that the British had exhausted their ammunition, we do not doubt that he would have advanced to give us battle. It is said, indeed, that he did offer to lead his regiments to the attack, but that they declined so hazardous an enterprise.

Similar opinions are expressed by Sir Lepel Griffin in the 'Punjab Chiefs,' a work of great interest and merit. Cunningham was transferred to the Public Works Department in 1850. He was promoted Captain on November 13, 1849, and had just been appointed to the Meerut Division of Public Works when he died suddenly, near Umballa, on February 28, 1851, before attaining his fortieth year.

[*Dictionary of National Biography; The Career of Major George Broadfoot; Life of Sir Henry Durand.*]

LIEUTENANT JAMES SUTHERLAND BROADFOOT

Lieutenant James Sutherland Broadfoot, youngest son of the Rev. William Broadfoot and brother of Major George Broadfoot, C.B., the hero of Jellalabad, was born in 1816, and was appointed in 1835 to the Bengal Engineers from Addiscombe. He was distinguished in the first Afghan War, and one of the first duties on which he was employed was the bridging of the Indus to allow of the passage of the army with its stores and baggage. No one who has seen that river can doubt the magnitude of the task, even if every appliance which science could suggest had been at hand. But on this occasion, as on many others, the Engineers were confronted with the obstacle, and left to overcome it with such means as Nature had provided. The Engineer officers with the force were Captain Thomson (Chief Engineer), Captain Sanders, Lieutenants Anderson, Durand, Sturt, McLeod, Pigou, and James Broadfoot. In a letter dated 'Shikarpur, February 9, 1839,' the last-mentioned officer wrote:—

'The Engineers went on ahead to Bukkur, an island in the Indus twenty miles from here. We were on the bank of a river, 1100 yards wide,[1] with a torrent like a mill-stream; we had eight boats, and there was nothing near us but a small village; here we had to make a bridge over the river. First, we seized by great exertion about 120 boats, then cut down lots of trees; these we made into strong beams and planks; there was no rope, but we made 500 cables out of a peculiar kind of grass which grows not far from here; the anchors were made with small trees joined and loaded with half a ton of stone. Our nails were all made on the spot. We then anchored the boats in the middle of

[1] 'At the island of Bukkur there are two channels, said to have been 500 and 367 yards respectively.'—*First Afghan War*, p. 122.

the stream, in a line across, leaving twelve feet between each; strong beams were laid across the boats, and planks nailed on these as a roadway. This is the largest military bridge which has ever been made; and as we had no towns like English ones to give us workmen and stores for the asking, you may conceive what labour we had in finishing it in eleven days. Captain Backhouse, of the Bengal Artillery, an able officer and intelligent observer, remarked: "The Engineers give themselves, and with great justice, no little credit for their job, since they have here made themselves almost every article in use, with the exception of the boats." He has further recorded with natural indignation an arrangement for which a Brigadier-General was responsible, whereby his guns were on one side of the river, and their ammunition on the other! After a narrow escape from starvation the army reached Kandahar. Ghuzni was afterwards captured after the blowing in of the gate by the Engineers under Captain G. Thomson.'

The Ameer calculated with justice on the British force being delayed for some time before Ghuzni. He and his emissaries had no difficulty whatever in deceiving MacNaghten as to the strength of the place, and the nature of the resistance likely to be offered. Two forces under the Ghuzni chiefs Abdul Rahman and Gul Mohammed Khan, had marched parallel to our force, one on each flank, at a distance of twelve to fifteen miles, all the way from Khelat-i-Ghilzai. Their object was evidently not immediate attack, but to await the anticipated check to our troops at Ghuzni, and to take advantage of any confusion which might result therefrom. It cannot be denied that our position before Ghuzni was critical in the extreme. So completely was MacNaghten deceived by the information supplied, that the day before Ghuzni was reached he declared the place to be empty; and acting on this information the Commander-in-Chief and his staff rode on ahead to enter the deserted fort, and were only undeceived when fired on and compelled to return.

It was now resolved to blow in the gate of the fortress, and a few extracts from the Diary of Lieutenant James Broadfoot are interesting: 'A bag of 300 lbs. of powder was to be laid at the Kabul Gate, protected by the fire of the batteries, and by the Ghoorkas of William's [1] corps. The gate was to be blown open, and a storming party, composed of four European regiments, was to advance immediately. Pigou was asked to take the scaling ladders, and imagining it a real storming party he was in ecstasy, sharpened his sword, loaded his pistols, &c., &c.

I volunteered to carry the bag, as did Pigou, but was refused. Later in the day William came, very excited, and told me he was not to go, the corps having been stopped on the pretence that the Shah was not sufficiently protected. He nearly threw up his commission in the Shah's service, but at last went away to try to join his old corps as a volunteer.

'At mess on the evening before the assault was considered of very great gravity, except on the part of Pigou and myself. I rose at twelve and forgot to put on blue trousers, white being forbidden, and had therefore to go and change after leaving camp. Batteries and embrasures were made and the guns put in position, and then daylight was awaited. At last Peat and the powder party appeared, when the eastern horizon was just strong enough to show the hills in strong relief. The garrison opened fire on them; the covering party extended on the edge of the ditch replied: a few minutes afterwards a large volume of smoke above the walls and a rushing sound showed that the explosion had taken place. The head of the storming party now appeared with Brigadier Sale, doubtful whether to proceed or not. In this uncertainty I offered to go on to see if the explosion had been effectual. Being allowed, I ran in towards the gate; my anxiety to get on, and the constant whirring of the balls past my head, made every step appear a mile. A little further on I got into the

[1] Lieutenant William Broadfoot of the 1st European L.I., now the Royal Munster Fusiliers; he was then attached to Shah Shujah's force.

range of the camel battery, and had to creep along to avoid our own balls. At last I met Durand and shouted twice, "Has it failed?" He called out, "No, no." I then ran back so fast, shouting out for the advance, that my breath was entirely taken away. Peat and McLeod were stretched under a little tomb halfway, the former groaning heavily. He had been rolled over and over by the explosion and was much shattered.

'My report having been made the advance was ordered. I then ran on to the head of the column and entered with it, exposing myself to a severe reprimand. From the advance of the powder party not a quarter of an hour had elapsed, yet it seemed an age. On our way to the gate a shower of matchlock balls was kept up from the fort, with an occasional round shot, while our own artillery was thundering in our rear. Once within the darkness of the archway the fire stopped, the men gathered close, and sent up a magnificent cheer, in which we all joined, and thus was our first step gained.

'I understand that the cheer was carried all round the columns to the other brigades, from there to the camp, and the hill on which perhaps[1] forty thousand people were witnessing our progress, generals, politicals, servants, black and white, all joining the swelling cheer. I did not hear all this, being engaged differently. The entrance through the gate turned to the left and then to the right: the beams and fragments were lying thick, and we stumbled over a few bodies and wounded, and were entangled in the *débris*. There were about ten men ahead of us. Suddenly a clashing sound, succeeded by a louder clashing, was heard. "There go the bayonets!" said one. After a few moments of deep anxiety to see who would prevail, my heart sank when there was a cry of "Back! back!" and a rush out again. I got in the shelter of a beam, and saw the men pass and stay behind, and remain as if stupefied in the entrance of the gate; it seemed an hour before we got them on again; at last we did so. Then we went

[1] There were 30,000 camp followers at the start of the expedition.

on into the streets, meeting small parties of the enemy, some trying to escape, others to cut their way through; every one was killed. Even horses and camels were fired at in the grey of the morning. Every officer tried to compose the men, but to no avail. In going towards the gate I met William [1] with his arm in a sling. We made a rush at the gate, nearly deserted and half open, and carried it with little opposition. The colours were planted on the four towers of the palace. The firing in the town was as constant as ever, few people asking quarter, and no one giving it. I saw lots of men who had seized camels, horses, mules, arms, and clothes. I stood on a high ground where I could see men jumping from walls thirty feet high, or sliding down ropes, or hunted through the streets by soldiers with their bayonets close to their backs. The soldiers hardly ever caught them. Outside the cavalry killed about one hundred or two hundred, and 1700 prisoners were made. At eight o'clock, being quite tired with eight hours' labour, I came away, meeting the Shah, the General, the politicals, coming in; the holes at the gate were filled with dead bodies.'

Ghuzni is a walled town with a deep ditch, situated in a plain surrounded by high mountains, by a spur from one of which it is commanded. In the centre of the town is a hill about 300 feet high, on which is the citadel. A small stream runs near and round the town, and there are numerous walled gardens, which were occupied by the Afghans. The fort was garrisoned by from three to four thousand men under Hyder Khan, the son of Dost Mohammed.

The result of the capture was decisive: it was worth many lakhs of rupees paid by political officers to secure immunity from attack, or to induce treason in the enemy's camp. The Afghans learnt, for the time at any rate, that the English could strike a heavy blow, and respected them accordingly. Dost Mohammed behaved under the circumstances with his customary bravery. He

[1] Lieutenant William Broadfoot the writer's brother.

had brought his troops from Kabul to oppose the advancing force, and finding that his men were shaken by the news from Ghuzni, he rode amongst them, Koran in hand, begging them to support him, so at least he might die with honour, after which they might, if they pleased, join Shah Shujah. It was in vain; his men deserted him, and with his family and a small remnant of his force he fled to Bamian.

Our army found the Ameer's guns at Arghandeh, and, advancing by regular stages, occupied Kabul on August 7, 1839, and seated Shah Shujah on the throne, without opposition on the one hand, and on the other without the slightest popular enthusiasm.

The army of occupation was reduced in number, part of it having been sent back to India. What remained, instead of being concentrated in one or two important places, was scattered in small bodies over a vast extent of country. Our administration, though nominally that of Shah Shujah, was unpopular, and disturbances arose in various directions.

From Ghuzni Lieutenant Broadfoot was sent to join Captain Outram's force against the Ghilzais and other refractory Afghans in the neighbourhood. He remained with this force while it was in the field, and marched 340 miles in a month, surveying the country, assisting at the occasional fights, and collecting information regarding the tribes of that unknown country. These reports on 'Parts of the Ghilzais' Country, and on some of the Tribes in the Neighbourhood of Ghuzni,' and on the route from 'Ghuzni to Dera Ismail Khan by the Ghwalari Pass,' which were edited by Major William Broadfoot, R.E., have been published in the Supplementary Papers of the Royal Geographical Society, vol. i. part 3, 1885.

When the expedition was over Lieutenant Broadfoot was allowed to explore the route described in Report II. From his Journal I extract the following: 'The proposal to explore this pass had been started, I heard at Kabul, by Outram, whom the Commander-in-Chief would not allow to go. Outram assisted me by

asking Sir W. Mac Naghten's permission; and Major McLaren allowed me to go in anticipation of sanction.' In a letter home, written just after the journey was accomplished, he says: 'Between Afghanistan and India runs the great Suliman range of mountains. The army started from Kurnal and marched round to Ghuzni *viâ* Ferozepur, Sukkur, and Kandahar, nearly eight hundred miles out of the straight line. It returned to Kurnal *viâ* Kabul and Peshawar.

'The route from Ghuzni to India lies through an unexplored country, of which the mountains were stated to be so high, and the people so wild, that nothing was known of the route. It was much desired that the route should be surveyed, but the attempt was considered dangerous. I made agreements with natives, put on their dress, and went among a set of murderers unharmed, because a guest, although one hundred of the men of my party were killed one night.'

Lieutenant Broadfoot was travelling with a caravan of merchants. He goes on to say: 'The beard and dress quite led them to think me a good Mohammedan, and no Englishman. For twenty days I passed through a range of stupendous mountains, without a house, a dog, a crow, or any sign of life but the nightly plunderers who waited to surprise the caravan. At last I came into the plains of the Punjab, and crossed them as an Afghan flying before the English. The people of the Punjab, lately our firm allies, are now our bitter enemies; and as an Englishman I should have been insulted, if not stripped and killed. Though there are no mountains, yet I passed five rivers larger than the Thames, six- or sevenfold, and one hundred miles of desert. At last I reached Lahore, a magnificent town, and in three days was in Ferozepur on the Sutlej, exactly one year (November 29, 1839) from the day when I entered it proceeding with the army, and where I saw the interview with Runjit Singh, now dead. Then I was all expectation and hope, now I came back weary with fatigue, after seeing the most curious race of robbers and

murderers, and perhaps the wildest countries, in Asia. I went into the first house I found, and met an old friend of William's,[1] and had my beard cut off, and ate with a knife and fork, and sat on a chair in an English dress.' Lieutenant Broadfoot then went to Kurnal, where he wrote the report and drew out the plans. They were submitted to Lord Auckland, who was pleased to express great satisfaction with them, and who permitted Lieutenant Broadfoot at his own request to return to Afghanistan.

Dost Mohammed, after wandering as far as Bokhara and suffering many vicissitudes of fortune, having got together some followers, raised his standard at Khulum. He was defeated in an endeavour to penetrate towards Bamian, and made his way into what is known as the Kohistan of Kabul. Sir Robert Sale with a small force was sent to intercept him if possible, and prevent his return beyond the Hindu Kush. Sale sent on the cavalry to prevent Dost Mohammed escaping by the Parwan Pass, and the latter, seeing his retreat threatened, determined, with a small body of sixty or eighty Afghans, to cut his way through. Captain Fraser, who commanded the two squadrons of the 2nd Bengal Cavalry, ordered them to charge, but the men wavered and fled in spite of the most earnest exhortations of their officers. What happened cannot be known with absolute accuracy. The officers of the cavalry, accompanied by Dr. Lord and James Broadfoot, but deserted by their followers, charged the Afghans who were advancing under Dost Mohammed. Of six officers who thus charged, three—Dr. Lord, Lieutenant T. S. Broadfoot, and Cornet Crispin—were killed, and two, Captains Fraser and Ponsonby, were desperately wounded. James Broadfoot was badly mounted; he was seen trying to prevent the flight of the cavalry, and it was believed for some time that he was killed by our own men. This does not appear to have been the case, for afterwards an Afghan, Jan Fishan Khan, who was present, reported that when our

[1] His brother, Lieutenant William Broadfoot of the Bengal European Regiment.

cavalry fled he saw Captain Fraser in front, and James Broadfoot on the flank. When Fraser was wounded he saw James cut his way through the Afghans to a great distance, when all at once the Engineer's cap, by which he had hitherto kept him in view, disappeared in the midst of a group of Afghans, and, said Jan Fishan, 'having no more hope, I, too, turned and rode away.'

This happened on November 2, 1840; next day Dost Mohammed rode into Kabul with one companion and gave himself up to the Envoy.

James Broadfoot left the reputation of extraordinary talent and extraordinary bravery. Writing of his brother in July 1841, Major George Broadfoot observes: 'It is to me quite affecting to hear the Afghans and others speak of him. "The young Broadfoot that spoke our language," they call him, and to compare small with great the impression left by him on all classes of natives is of the same kind (though less in degree) as that left by Elphinstone, which is altogether extraordinary even now.'

After the occupation of Kabul by General Pollock in 1842, General McCaskill's force proceeded northwards to Charikar, where his brother William Broadfoot had erected a stone to the memory of James, killed at the Parwan Pass.

And again in 1843 Major George Broadfoot writes: 'Lord Ellenborough has given me Ghuzni medals for William and James. I shall most likely send them home for fear I lose them.'

[From *The Career of Major George Broadfoot, C.B.*, by Major W. Broadfoot, R.E., and letters in the possession of Major W. Broadfoot.]

LIEUTENANT-COLONEL GEORGE THOMSON, C.B.

THE second of the six sons of George Thomson, Esq., of Fairly, Aberdeenshire, was born on September 19, 1799. He joined Addiscombe in 1814, and passed out in October 1816, but, there being no vacancy, his commission was not dated until

September 1, 1818. Three of his brothers entered the service: his eldest brother, Alexander, the Bengal Artillery; William, the Medical Service; and John, the Bengal Engineers, 1820. George reached Calcutta September 18, 1818. All his early service was with the corps of Bengal Sappers, which had lately been formed, the commandant being Major (afterwards Sir Thomas) Anbury. The newly formed corps was established at Allahabad. On January 28, 1821, we find him at Asseerghur, when he paid a visit to his brother Alexander at Mhow. In 1822 he was employed in making a road between Asseerghur and Nagpore. Afterwards he made a road from Nagpore to Chuppara, and then was ordered to blow up the fort at Mundla in June 1824. In 1824 the war with Burmah commenced, and it was resolved to drive the Burmese out of Arracan, and Thomson received orders to join at Chittagong. On December 14, 1824, he left Calcutta for Chittagong as Field Engineer. General Morrison's force invaded Arracan by a route along the sea; after crossing the Maqu estuary they had to advance north-east through a difficult country, and to cross the Arracan river, beyond which lay the old river of Arracan. The army captured Arracan on April 1, 1825. Thomson was employed with the advance and found it 'very fatiguing, as the forest was too thick, and the rivers too muddy and too deep, to allow of any other mode of conveyance but his feet.' General Morrison in his despatch spoke of the 'zeal and practical proficiency in the performance of his duty which he had displayed.' The army passed the rainy season at Arracan, and 'suffered more casualties from the pestilential climate than it would have had in ten campaigns against the Burmese: 2,000 dead, 1,000 gone away, and 4,500 in hospitals!

'In October, of 200 officers 28 were dead and 120 gone on sick leave! On October 1 the rain ceased, and Thomson was employed in reporting the best situation for cantoning the division. The casualties were so great that the Government were obliged to order the whole to be relieved; and to give the new corps

some chance of living the site of the cantonment was to be changed.'

After eight or nine months more, Thomson was recalled to Bengal and nominated, in September 1826, Executive Engineer at Neemuch, for the purpose of building a fort there. He went on furlough in February 1829, returning to India November 1831. While at home he married Anna, daughter of Alexander Dingwall, of Ramiston, Aberdeenshire.

For several years after his return he was employed on the Grand Trunk Road between Burdwan and Benares.

Sir Thomas Anbury, of the Bengal Engineers, in 1833 writes of him: 'I can most truly and justly say that a more talented, indefatigable, zealous officer is not in any corps in the service, or one of more practical service. He was overladen with an impracticable multitude of duties extending over 330 miles of road, and he came more than once into conflict with the Board, conflict renewed at a later date, and which left much sore feeling in his mind.'

In March 1837 Captain Thomson was appointed to command the Sappers at Delhi, holding also the executive charge of the Delhi division, Public Works Department.

In 1838 he was selected Commanding Engineer of the Army of the Indus for the ill-advised invasion of Afghanistan. Appointed September 13, he marched from Delhi with two companies of Sappers on October 20. The Sappers formed part of the reduced army which was to assist Shah Shujah in his endeavours to regain the Kabul throne. The route was through the Bolan Pass, and over the Khojak to Kandahar, and thence by Ghuzni to Kabul. On three occasions on this memorable march the army was greatly indebted to Thomson. First, when the Indus had to be crossed. It was crossed at the island of Bukkur, where there were two channels, 500 and 307 yards respectively, the water running like a mill-stream. Thomson had requested the Political Agent to collect boats at Bukkur and also at Ferozepore, and to purchase deodar timbers. The latter were appropriated for a

bridge at Ferozepore for the Governor-General, and no boats had been got ready at Bukkur, as Sir A. Barnes deemed a bridge at Bukkur neither practicable nor necessary. When the Engineers arrived they found only eight boats, and nothing near except a small village and some date palms. By great exertions 120 boats were seized, palm trees were cut down and split, 500 cables were made out of grass, anchors were made out of small trees joined and loaded with half a ton of stone, nails were made on the spot, and in eleven days a military bridge, one of the largest which have ever been made, was completed.

Sir Henry Durand said: 'Thomson was justly praised for opening the campaign with a work of such ability and magnitude; for to have bridged the Indus was at once impressive and emblematic of the power and resources of the army, which thus surmounted a mighty obstacle.'

On the other two occasions it is not too much to say that the army owed its existence, and the general his success and rewards, to the counsel of Thomson.

On arrival at Quetta Sir Willoughby Cotton, commanding the Bengal division, found that he had but ten days' supply of food, and was 147 miles from Kandahar, the next place where he could get supplies. He received a peremptory order from Sir John Keane to halt. He was thus placed in a dilemma—either he must obey his superior's orders, or place the troops on half rations. He hesitated to reduce rations for fear of discontent, and he equally feared to disobey Keane. Thomson went round to all commanding officers, explained the circumstances, and asked for their co-operation; and urged Cotton to issue orders putting fighting men on half rations, and camp followers on quarter. The order was issued and the army saved, for had their food been exhausted nothing could have averted destruction.

Yet again, for the third time, the army was indebted for its safety to its Engineer officer, Captain G. Thomson. This was at Ghuzni. Keane had been told by the politicals that Ghuzni was deserted, so

he had taken no breaching guns, only a battery of 24-pounder howitzers, useless for battering. On arrival he found Ghuzni strong, and strongly held by the Afghans. His supply of food was short, and two armies of Ghilzais were hovering on his flanks. When the Envoy and the Commander-in-Chief were undeceived, the Engineer was called on to reconnoitre and report. He did so, and placed two alternatives before Sir John Keane: to blow open a gate and immediately assault, an operation the success of which may be doubtful and generally attended with heavy loss; or to mask the fort by a small corps, and with the rest of the army advance and attack Dost Mohammed. The latter alternative was abandoned, as the army was without the necessary supplies, and the proposal to assault was approved.

After the explosion at the gate, Lieutenant James Broadfoot in his Diary relates meeting Thomson, who had been thrown down, and General Sale, who was wounded, also staggering out.

Sir John Keane (afterwards Lord Keane of Ghuzni) did not fail to do justice to Thomson. He wrote: 'To Captain Thomson, of the Bengal Engineers, much of the success of this brilliant *coup de main* is due. A place of the same strength, and by such simple means as this highly talented and scientific officer recommended to be tried, has, perhaps, never before been taken, and I feel I cannot do sufficient justice to Captain Thomson's merits throughout.'

Again, in his General Orders, Sir John said: 'The scientific and successful manner in which the Kabul Gate—of great strength—was blown up by Captain Thomson, in which he reports having been most ably assisted by Captain Peat, Bombay Engineers, and Lieutenants Durand and McLeod, of the Bengal Engineers, in the daring and dangerous enterprise of laying down powder in the face of the enemy, and the strong fire kept up on them, reflects the highest credit on their skill and cool courage, and His Excellency begs Captain Thomson and officers named will accept his cordial thanks.'

This happened on July 22, and the next day the army marched forwards in two divisions, and in August we entered Kabul. While at Kabul Thomson 'went across the Caucasus to Bamian (110 miles) to look at part of that route of invasion.'

From Kabul he wrote: 'Several officers have died lately at Kabul, and, as old Brigadier Roberts observed, "it was worth any man's while to die, in order to see how beautifully his traps would sell." A box of 1000 cigars, which cost in India from 25 to 30 rupees for the best, sold for 1050 rupees. Durand paid 17 rupees for a tumbler, and brandy sold at 20 rupees a bottle.'

Thomson returned to India before the end of 1839, and resumed his position in command of Sappers at Delhi. He was made a Brevet-Major and obtained the C.B. for his services, and also the Second Class of the Order of the Dooranee Empire. Soon after he obtained leave to England, and retired from the service January 25, 1841.

Lord Auckland, who was aware of his high qualities, endeavoured to dissuade him, but unsuccessfully. He had been treated unjustly by the Military Board, and he resigned his appointment, disgusted at the treatment he had met with. His health had suffered, and he had lost several children, while his brother John (Bengal Engineers) had died and left him a considerable bequest.

A few years afterwards he lost money, and in 1844 was glad to accept the posts of Recruiting Officer at Cork, and Pension Paymaster. The former he held until 1861, and the latter he did not resign until 1877, when he settled in Dublin. He was a director of the Great Southern and Western Railway in 1846, and was really the Inspecting Director of the Company. In fact, he was in active superintendence of the southern part of the railway, and of the making of the tunnel into Cork.

As late as 1876 we find him taking part (at seventy-seven years of age) with the Cork Corporation and Harbour Commissioners,

with regard to proposed railway extension, and to works in connection with the new deep-water quay at Queenstown.

Sir Frederick Abbott, who relieved him at Neemuch, writes: 'Thomson possessed great decision and independence of character. Frank and cheerful in manner, he was a favourite in society; his talents, too, were much appreciated. He was tall and well built.'

Sir Henry Yule states he was fortunate enough to meet him in Calcutta when Thomson was on his way home, and he had a vivid remembrance of his frank and friendly manner, his tall wiry figure, and his keen and kindly countenance, as well as a sense of regret that such a man should be leaving the corps. He died in Dublin on February 10, 1886, in his eighty-seventh year.

[Vibart's *Addiscombe*; *Diary of James Sutherland Broadfoot.*]

THIRD PERIOD: 1850–1860

The Second Burmese War, 1852-53—The Indian Mutiny, 1857-59—Lists of officers engaged—Changes in organisation of the Corps and Promotions.

Biographical notices of General Sir John Cheape, G.C.B., Major-General Sir Frederick Abbott, Lieutenant-Colonel John Anderson, Captain George W. Fulton, Captain Arthur William Garnett, Colonel Richard Baird Smith, C.B., Lieutenant Duncan Home, V.C., Lieutenant Philip Salkeld, V.C.

In the second Burmese War of 1852–53, the following officers of the Bengal Engineers were employed, viz.: Brigadier-General Sir John Cheape, K.C.B., Captain Alexander Fraser (afterwards General and Colonel-Commandant), Captain H. Drummond, Lieutenant G. A. Austen, Captain C. D. Newmarch, Captain H. Fraser, Lieutenant H. Yule, Lieutenant G. A. Craster, Lieutenant W. S. Trevor, Lieutenant E. C. S. Williams (afterwards General Sir E. Williams, K.C.I.E.) and Lieutenant Leverton Donaldson, who was killed in action near Rangoon on April 12, 1853.

The army was under the command of Major-General Sir John Cheape, K.C.B., under whose able and skilful direction the campaign was brought to a successful conclusion in March 1853.

A short account of portions of this campaign will be found in the notice of Sir John Cheape's services.

We now come to the year 1857, in which occurred the greatest Indian event of the century: the Mutiny of the Native Army, which shook our Indian Empire to its foundations, when the whole of the Bengal Army, with the exception of a few regiments, revolted, and which resulted in the abolition of the East India Company, and the placing of the government of the country

directly under the Queen, with a Viceroy appointed by Her Majesty's Government and an Indian Council and Secretary of State for India in London.

At the time of the outbreak of the Mutiny in 1857 there were, including three Colonels-Commandant, 117 officers of Bengal Engineers serving in the corps, and of these not less than seventy were engaged on service in quelling the Mutiny, either in the great operations, such as the Siege of Delhi, the defence, relief, and capture of Lucknow, or in other parts of the country where the revolt was in progress. Sixteen officers lost their lives in the Mutiny, either having been killed in action or having died from wounds, or from illness caused by exposure during the operations. Their names were: Colonel Hugh Fraser, C.B.; Lieutenant-Colonel T. Anderson and Captain G. W. Fulton, at Lucknow during the defence; Captain Edward Fraser, Commandant of the Bengal Sappers and Miners, killed by mutineers at Meerut; Lieutenant C. D. Innes, killed at Allahabad; Lieutenant D. C. Home, V.C., killed by an accidental explosion at Malagurh; Captain F. Whiting and Lieutenants Swynfen C. Jervis and J. R. Monckton, killed at Cawnpore; Lieutenant P. Salkeld, V.C., died of wounds received while blowing in the Cashmere gate at Delhi; Lieutenant E. Walker, died of cholera during the Siege of Delhi; Lieutenants W. G. Geneste and W. F. Fulford, died from illness caused by exposure during the Siege of Delhi; Lieutenant E. P. Brownlow, killed by explosion at the capture of Lucknow; Lieutenants F. L. Tandy and E. Jones, killed at the Siege of Delhi. A monument, designed and sculptured by Marochetti, has been erected in the Calcutta Cathedral in memory of these officers, and the names of the officers killed during the Siege of Delhi are also inscribed on the monument on the Delhi Ridge. The list of officers wounded during the Mutiny included the names of Colonel Robert Napier, Captain Alexander Taylor, Lieutenants W. W. Greathed, H. W Gulliver, F. R. Maunsell (dangerously), H. Brownlow, J. G. Medley, J. McLeod Innes, V.C., G. T. Chesney, W. E. Warrand

(dangerously), P. Geneste, J. Hovenden, Æ. Perkins, E. W. Humphrey, J. Champain, R. C. B. Pemberton, H. A. L. Carnegie, J. G. Forbes.

Thirty-two officers took part in the Siege of Delhi, viz.: Lieutenant-Colonel R. Baird Smith, Chief Engineer; Major J. Laughton, Captain A. Taylor, Lieutenants D. Home, P. Salkeld (killed), J. Medley, W. Greathed, F. R. Maunsell, J. F. Tennant, H. W. Gulliver, C. T. Stewart, W. E. Warrand, G. Chesney, H. A. Brownlow, P. Geneste, Hovenden, Æ. Perkins, E. Walker, A. Lang, C. S. Thompson, L. Tandy (killed), A. McNeill, P. Murray, J. Champain, R. C. B. Pemberton, D. Ward, Fulford, E. Jones (killed), H. A. L. Carnegie, E. T. Thackeray, J. G. Forbes, and Lieutenant J. T. Walker (Bombay Engineers).

In the illustrious garrison of Lucknow there were present Lieutenant-Colonel T. Anderson, Captain T. W. Fulton (killed), Lieutenant T. McLeod Innes, and at the two reliefs: Colonel R. Napier, Major Crommelin, D. Limond, Lindsay Russell, and Lieutenants A. Lang and J. G. Forbes. At the capture of Lucknow, in March 1858, the following officers of the Royal Engineers (Imperial List) were present: Lieutenant-Colonel Harness (afterwards General Sir Henry Harness, K.C.B.), Major Nicholson (afterwards General Sir Lothian Nicholson), Captain Clarke (killed), Captain Cox, Major Lennox, V.C. (afterwards General Sir William Lennox), Captain Beaumont, Lieutenants Scratchley, Malcolm, Pritchard, Wynne, Swetenham, Keith, and Harrison (afterwards General Sir Richard Harrison, Inspector-General of Fortifications).

The officers of Bengal Engineers were: Brigadier-General Sir R. Napier; Major A. Taylor; Captains Maunsell, Gulliver, Tennant, Hovenden, Young, Hutchinson, Watson, and Lieutenants J. McLeod Innes, V.C., Champain, Pemberton, Murray, McNeill, Ward; Second Lieutenants Fulford, Carnegie, Thackeray, Forbes, Judge, and R. Smyth; Lieutenants Scott, Sankey (afterwards Lieutenant-General Sir Richard Sankey, K.C.B.), and Burton of

the Madras Engineers, were also present. In the biographical notices of Lord Napier of Magdala, Sir Henry Durand, Colonel Baird Smith, Lieutenant-Colonel Anderson, and Captain T. W. Fulton and other officers, short accounts will be found of portions of the operations in which they took prominent parts.

In addition to those before mentioned, the following officers were also engaged on active service during the Indian Mutiny from 1857 to 1859: Lieutenant-Colonel H. Durand, Captain A. D. Turnbull, A. G. Goodwyn, J. D. Campbell, A. Impey-Lovibond, C. W. Hutchinson, J. H. Dyas, H. Drummond, T. G. Glover, C. Pollard, Lieutenants F. S. Stanton, H. Goodwyn, G. Newmarch, J. L. Watts, W. Jeffreys, G. S. Hills, W. H. Oliver, C. Scott-Moncrieff, W. B. Holmes, and W. F. Blair.

The officers promoted, or who received rewards, for the Mutiny Campaign, were: Major-General Sir Robert Napier, K.C.B., Colonel Henry Durand, C.B., Colonel R. Baird Smith, C.B. and A.D.C. to the Queen, Lieutenant-Colonel A. Taylor, C.B., Lieutenant-Colonel Crommelin, C.B., Brevet Majors Greathed, Gulliver, Maunsell, Brownlow, Medley, Tennant, J. McLeod Innes, G. J. Chesney, Warrand, Hovenden, Watson, P. Stewart, C.B., C. W. Hutchinson, C.B., C.S.I., H. Drummond. Lieutenants Duncan Home, J. McLeod Innes, P. Salkeld, E. T. Thackeray, and Sergeant T. Smith (Bengal Sappers and Miners) were awarded the Victoria Cross. Sergeant Smith also obtained his commission.

In April 1858 an augmentation was made to the corps, by which five captains and twenty lieutenants were promoted, and in August of the same year five captains were made lieutenant-colonels, thirty-one lieutenants were promoted to be second captains, and twenty-eight second lieutenants were made lieutenants.

GENERAL SIR JOHN CHEAPE, G.C.B.

GENERAL SIR JOHN CHEAPE was born in 1792, and obtained his commission in the Bengal Engineers in 1809.

He served with the forces of the Marquis of Hastings in the Pindaree War of 1815–16. He also took part in the operations carried out by the Nerbudda field force under General Adams in 1817, and in the following year in those of the force under Doveton and Malcolm. He was present at the Siege of Asseerghur in March 1819.

The fort of Asseerghur is situated two miles from the end of the great western ranges of the Satpoora Hills and sixteen miles north of Boorhanpore. It is placed in one of the great passes from the Deccan into Hindustan, and the natural defence it receives from a precipice of rock in almost every part has been increased by a thick and lofty rampart of masonry, which is built on the summit of the rock, and by large cavities with guns which then commanded the country in every direction. The general height of position above the plain is 750 feet, and the total circumference, including upper and lower forts, 4,600 yards, or considerably over two miles and a half.

The third enclosure, which contains the lower fort, is called Malighur. The pettah is situated to the west in a hollow intersected by numerous ravines, and is commanded by the lower fort. The pettah was carried by assault at daybreak on March 18 by the column under Brigadiers Sir John Malcolm and Doveton. The Engineer Department was established in a large bomb-proof pagoda in the centre of the pettah, and the troops occupied the street in advance, which runs parallel to the fort. On March 23 the Engineers reconnoitred the east front of the fort, to fix on ground for General Doveton's encampment.

On March 27 the Ram Bagh, under the north-east angle of the upper fort, was occupied, and the Engineers' depôt stationed

there. On April 7 two breaching batteries opened on the retaining wall, and with the assistance of a third breaching battery a practicable breach was nearly effected. On April 8 the breaching batteries reopened at daylight. About 11 A.M. orders were received to cease firing, the Killadar, Jeswunt Rao Lar, having agreed to an unconditional surrender.

The Engineers' Department consisted of Lieutenant Coventry, Madras Engineers, commanding Engineers; Lieutenant Cheape, Bengal Engineers; Lieutenant Penton, Madras Engineers; Lieutenant[1] Irvine, Bengal Engineers; Ensign Lake, Madras Engineers (Staff); Ensign Warton, Bengal Engineers; 35 European Sappers and Miners, Madras Establishment; 45 Native Sappers and Miners, Madras Establishment; 125 Bengal Native Miners; 1000 Pioneers of Bengal, Madras, and Bombay, and about the same number of dooly-bearers and Lascars.

Captain Cheape served through the first Burmese War from 1824 to 1826. In November 1824 a letter from the Bandoola to the Governor of Martaban announced the departure of the former from Prome at the head of a formidable army. The Burmese force was estimated at 60,000 men, of whom half were armed with muskets, and the rest with swords and spears; a considerable number of jingals carrying balls from six to twelve ounces, and 700 irregular horse, were with the army, while a numerous flotilla of war boats and fire rafts proceeded along the stream.

The army formed a regular investment of the British lines, extending in a semicircle from Dalla, opposite Rangoon, round by Kemendine and the great pagoda to Puzendown, on the creek communicating with the Pegu branch of the river, their extreme right being opposite to the town on one side, and their extreme left approaching it on the other.

The enemy commenced on December 1 by attacking the post at Kemendine. They were repulsed.

[1] Afterwards Colonel Irvine, C.B., Director-General of Admiralty Works.

In the afternoon a reconnaissance was made of the enemy's left; the detachment broke through their entrenchments.

On December 5 a division of the flotilla and gunboats, under Captain Chads, was ordered up the Puzendown creek, to cannonade the enemy in flank.

Two columns of attack were formed to advance from the Rangoon side; one, 800 strong, under Major Sale, and the other, 500, under Major Walker.

The columns advanced at seven; that under Major Walker first came in contact with the enemy, and the entrenchment was carried at the point of the bayonet.

The other column was equally successful, and the whole of the left of the Burmese army was driven from the field, leaving numbers dead on the ground, and their guns and military and working stores in our hands.

Our loss was small, but Major Walker was shot while gallantly leading his men. On the 7th Sir A. Campbell ordered an attack to be made by four columns. The advance of the columns was preceded by a heavy cannonade. They were met by a heavy fire, but in spite of it they advanced to the entrenchments and quickly put the defenders to the rout.

The Burmese main force was completely dispersed, and their loss is supposed to have been 5000 men. Two hundred and forty pieces of ordnance were taken, as well as a large number of muskets. Our loss in these affairs was less than 50 killed, but more than 300 wounded.

The Commander-in-Chief thus noticed the conduct of the Engineers and Pioneers: 'To Captain Cheape (Bengal Engineers), Commanding Engineer, and every individual of the department, the greatest credit is due, &c.'

The treaty of peace with Burmah was concluded on February 24, 1826. The Burmese Government engaged to abstain from all interference with the affairs of Assam, Cachar, and Jyntia, to receive a British Resident at Ava, and depute a Burman Resident

to Calcutta; to concur in a commercial treaty, and to cede four provinces of Arracan, as well as Yeh, Tavoy Mergui, and Tenasserim. Two Engineer officers died from disease brought on by exposure, Captains Mackintosh and Grant, Madras Engineers, and three were wounded, Lieutenant Underwood, Madras Engineers, and Lieutenants Abbott and Dixon, Bengal Engineers. Captain Cheape was three times mentioned in despatches. Lieutenant Underwood, Madras Engineers, having written an address to the Governor-General regarding the omission of mention of the Engineer Department from the general orders by the Governor-General in Council, in which the names of the Madras Pioneers under Captain Crowe were referred to in the highest terms, received the following reply:—

'Adverting to the repeated mention by Major-General Sir Archibald Campbell of the zealous and gallant conduct displayed by the Engineer Department, under Captain Cheape, of the Bengal establishment, and of Lieutenant Underwood of that of Fort St. George, and to the acknowledgment of those services in the General Orders of the Governor-General in Council of December 24, 1824, there can be no doubt that the merits of the Engineer Department were duly appreciated by the Government of that period.

'The Governor-General is satisfied that the omission of the Engineer Department in the General Orders of April 11, 1826, was purely accidental. Under these circumstances, and at this distant period of time, the Governor-General in Council feels himself precluded from making the services of the Engineer Department in Ava the subject of a General Order; but he is happy to avail himself of the opportunity of declaring his sense of the zeal, gallantry, and professional talents of that arm of the service, as repeatedly brought to the notice of the Supreme Government in the General Orders of December 24, 1824. The Government of Fort St. George is accordingly requested to convey the above assurances to Lieutenant Underwood in reply to his letter on the subject.'

After the conclusion of the first Burmese War, Sir John Cheape was employed in various Engineer duties, without further war service, until 1848, but in that year he was appointed to command the Engineers during the second portion of the Siege of Mooltan. Here, in spite of every difficulty owing to insufficient appliances, the smallness of the British force, and the disinclination of the Bengal Sepoys to work in the trenches, he carried the operation to a successful conclusion. For these services he was appointed aide-de-camp to the Queen, and made a C.B.

Colonel J. Cheape, C.B., joined the besieging army before Mooltan on November 30, 1848, with rank of Brigadier. A force consisting of Artillery, Engineers, and Cavalry, and two regiments of European Infantry and four regiments of Native Infantry, arrived from Bombay on December 21, under command of Brigadier the Hon. H. Dundas, C.B., 60th Royal Rifles. It included the 1st and 4th companies Sappers under Major W. Scott.

On Christmas Day, General Whish had reoccupied his old position, and the Bombay force next day formed on his left.

On the 27th the enemy in the suburbs were attacked by four columns. Brigadier Dundas, commanding the left, moved round the left of the first original parallel, and drove the enemy successively from the Maya temple, and the mound called the Sidi Lál ke Bed, and the Baghi Bagh. Brigadier Casson advanced upon Rám Tirat and compelled the enemy to evacuate the Mandi Awa, and drove them out of the suburbs into the city. Captain Bailey lost an arm by a round shot at Mandi and died on January 8. Lieutenant Hill, Bombay Engineers, was badly wounded. The right column occupied without any loss the suburbs and buildings east and north-east of the citadel, including the Am Khás, Shams-i-Tabriz, the fortified village of Wazirabad, Sáwan Mall's tomb, and the brick kilns with their entrenchments. General Whish had decided upon attacking the north-east angle of the citadel in regular form. Brigadier Cheape advocated an attack upon the suburbs and

town, which was considered too great a risk, but a diversion [1] on the south-east side was resolved upon. There was, therefore, a right and a left attack; the first fell to the Bengal gunners, the latter was shared with the Bombay artillerymen. The numbering of the batteries is that of the Engineers, which included both Bengal and Bombay batteries.

December 28. *Right Attack.*—A ravine to the right of Shams-i-Tabriz, occupied the day before, was converted into a battery, No. XI., for six 8-inch mortars, which moved out of park that evening, and opened this morning at 700 yards from the outer walls of the fort. The infantry posts were loopholed. At dusk No. X. for two 24-pounders to destroy the upper defences of the north-east face of the citadel, and No. XII. for two 8- and three 10-inch howitzers to enfilade the face commanding the town, were marked out.

Left Attack.—No. I., three 10- and four 5½-inch mortars (Bengal), was established during the night on the Mandi Awa. No. II., for six 18-pounders to breach the curtain near the Khuni Bhurj at about 120 yards, was traced out, but not completed, material having to be conveyed from a distance. In the morning a heavy matchlock fire prevented more than the revetting of the finished portion. No. I. opened in the evening and continued during the night.

December 29. *Right Attack.*—Nos. X. and XII. commenced and completed during the night, as also connecting trenches with Shams-i-Tabriz. They were armed and opened during the day and trenches widened.

Left Attack.—On the previous day, Edwards (afterwards Major and C.B.) and Lake had relieved the Bombay troops of the posts about Sidi Lál ke Bed, and the latter, closing to the right, had their left posts in the suburbs about the Khuni Bhurj. No. II. was completed by midnight, but the first gun was not brought in until daybreak, and a company of the 9th Bombay

[1] So Brigadier Cheape in his Memorandum terms it; but it was, as he wished it to be, a real attack.

Native Infantry were unable, after several attempts, to bring in a second. Several gunners were wounded.

December 30. *Right Attack.*—Magazine for No. XII. commenced and completed.

Left Attack.—No. II. completed during the night and opened at daybreak. No. V. for two 6-pounders was commenced and armed by daybreak among the houses near the Delhi gate, to destroy the town wall defences at about 200 yards. Two Bombay 18-pounders and two 8-inch howitzers were placed behind a mud wall opposite the Delhi gate, and opened with effect upon the gateway. The mud wall coming down, a sandbag battery was put up. Lieutenant Henderson, Bombay Artillery, was wounded that day.

At 10 A.M. this day a shell from a mortar laid by Lieutenant Newall in No. XI. Battery fell upon the principal magazine near the southern face of the fort, a mosque which had been appropriated for that purpose, and which blew up, opening an extensive crater in the ground through the inner wall. General Whish in his report compares it to the explosion at the Siege of Hattras, March 1, 1817. When the smoke and dust had cleared away the enemy resolutely resumed their fire.

January 1, 1849.—On January 1, 1849, the Commanding Engineer at noon reported the Khuni Bhurj as looking well, though not likely to be a good breach, and recommended the assault, if it was to be made here, to be done at once.

Right Attack.—No. IX. completed. Repairs to batteries during the day.

Left Attack.—The fire of the four right[1] guns of No. II. was turned from the curtain on to the Bhurj itself. No. VIII. Battery armed and opened fire. Captain Siddons examined the breach in the early morning, and reported it practicable though steep.

[1] This was done by Lieutenant Pollard, Bengal Engineers (afterwards Lieutenant-General), without interfering with the direct fire of the left pieces.

That at the Delhi gate was said to be sufficiently practicable for an attempt.

The troops told off for the assault left camp after noon in two columns; the right, under Brigadier Markham, to attack the Delhi gate; the left, under Brigadier Stalker, to attack the Khuni Bhurj. The Bombay column was completely successful. The leading party crowning the breach found the communication with the Bhurj interrupted, but with the aid of two ladders procured by Lieutenant Oliphant [1] and his Sappers they got over a low house into it, driving out the enemy.

The other parties forced their way through the town, taking possession of the Pak, Haram, and Bohar gates, which were held during the night. Major Scott was wounded. That under Markham, on getting to the Delhi gate, found the lower part of the wall, previously concealed from view, too high for escalade. Captain Smyth, 32nd Foot, with great decision withdrew the leading companies under cover. This column had to find its way in through the other breach, whence it followed the eastern face of the town to the Delhi gate. The Daulat gate was taken next morning. Major Napier (afterwards Lord Napier) commanded the Engineers here. Captain Garforth was dangerously, Lieutenants A. Taylor [2] and J. A. Fuller severely, wounded; the latter by the explosion of a magazine near the Bohar gate.

After the establishment of the Council of Regency at Lahore, difficulties arose between the Diwán Múlráj and the British officials which finally led to the Mooltan rebellion. It ended in the capture of Mooltan and the annexation of the Punjab by the British.

The city offered a resolute defence, but being stormed on January 2, 1849, fell after severe fighting; and Múlráj surrendered at discretion. He was put on his trial for the murder of an official, and being found guilty was sentenced to death;

[1] Afterwards Major-General; died in 1898.

[2] Afterwards General Sir Alexander Taylor, G.C.B.

but this penalty was afterwards commuted for that of transportation. The district at once passed under British rule.

The city of Mooltan is situated four miles from the present left bank of the Chenáb, enclosed on three sides by a wall from ten to twenty feet in height, but open towards the south, where the dry bed of the old Ravee intervenes between the town and the citadel. The original town consisted of two islands which are now crowned by the city and citadel, at an elevation of some fifty feet above the surrounding country. The fortifications were dismantled in 1854, but the fort still remains a place of considerable strength, occupied by a European garrison. Within the city proper, narrow and tortuous streets often ending in *culs-de-sac* fill almost the whole space; but one broad bazár (constructed by the British immediately after the annexation) runs from end to end. Mooltan is a town of great antiquity. The principal buildings include the shrines of the Mohammedan saints Baha-oo-dun, Rukn-ul-alam, lineal descendants of the Prophet, which stand in the citadel. Close by are the remains of an ancient Hindu temple called Paládpuri, blown down by the explosion of the powder magazine during the siege of 1849.

The treaty of 1826 with Burmah guaranteed the safety of our merchants and commerce. The King of Ava had also agreed to receive a Resident at Ava, but two or three of them were so badly treated that the British Government resolved to refrain from sending any more. Our merchants were subjected to great oppression and exaction.

The oppression culminated in the Governor of Rangoon placing a British ship-captain in the stocks, on the false complaint of a Burmesé pilot, and fining him (the captain) 900 rupees.

The Governor-General demanded the removal of the Governor of Rangoon, the payment of 900*l.*, and the admission of an Agent at Rangoon or Ava. The Court of Ava at first seemed disposed to agree, and sent a new Governor to Rangoon, but he turned out more arrogant than the former one; and finally a deputation

sent to wait on the Viceroy by our Commodore, consisting of a number of British naval officers, was grossly insulted, and, as a consequence, all British merchants and residents of Rangoon were requested to repair on board the flagship.

All the British subjects embarked by 8 P.M. on January 6, 1852, and by midnight the whole of the ships were removed by the steamers off the town. The men-of-war also moved; and the King of Ava's ship, then lying in the harbour, was seized and taken some five miles down the river. The next day all ships were ordered to prepare for departure out of the Rangoon waters.

On the 9th the Burmese ship was towed down by the 'Hermes.' As she passed the stockade she was fired upon, and the fire was immediately returned. The cannonade was continued for two hours, and did great damage to the works. About 300 of the enemy were killed, and the same number wounded. The action of the Commodore was entirely approved of by the Governor-General, and a written apology was demanded by the Governor-General from the Rangoon Governor. This, it was soon found, the Governor had no intention of giving, and on the 10th or 12th of February it was decided to send an expedition to Burmah.

On April 2 the Bengal Division arrived off the mouth of the Rangoon River in four steamers and four transports, under General Godwin. The next day it left for Moulmein, and on the 5th the force appeared in front of Martaban, and opened fire against its defences. A storming party was formed, which attacked the chief position under a heavy fire, and in a few minutes Martaban fell.

Rangoon was captured by assault on April 14.

On May 17 General Godwin proceeded to take Bassein.

When the troops landed from the steamers the enemy opened fire. Our troops at once advanced, the stockade was surmounted, the pagoda gained, and the enemy driven in every direction within fifty minutes. Our loss was two men killed, and five officers and fifteen men wounded. Lieutenant Craster (afterwards Major-

General) and Lieutenant Ford received the thanks of the Governor-General in Council. Early in May the Peguese had risen against the Burmese, and turned them out of the town; but at the end of the month the case was reversed, and Pegu was again in the hands of the Burmese.

On June 3 a small expedition left Rangoon for Pegu, under the command of Brevet Major Cotton, 67th Native Infantry.

On the 4th the troops stormed the pagoda at Pegu, and after destroying the fortifications returned to Rangoon on the 5th.

After our troops left Pegu, the Burmese came down, 3000 or 4000 strong, and again drove out the Peguese.

Prome was temporarily occupied on July 9 by Commodore Tarleton. Twenty-two guns were taken from the enemy by the steam flotilla. The flotilla was attacked on the 7th by a strong force of the enemy at Kanongee. The enemy's fire was silenced in an hour, and the steamers proceeded.

On the 10th they fell in with the rear of General Bandoola's army (he was the son of Bandoola of the first Burmese War), and after an exchange of shots the enemy fled in great confusion.

On July 27 the Governor-General of India, Lord Dalhousie, arrived at Rangoon, and left again on August 1 after publishing an order 'offering the combined force his most cordial acknowledgment of the valuable and distinguished services they have rendered here.' Rangoon, Martaban, and Bassein were in our possession, giving us complete control over the Irrawady.

Still the King of Ava seemed indisposed to give way; accordingly, after the departure of the Governor-General from Rangoon, measures were taken to forward reinforcements from Bengal and Madras.

The Army of Ava was composed of two divisions, each of three brigades.

Brigadier-General Sir John Cheape, K.C.B. (Bengal Engineers), commanded the Bengal Division, while Brigadier-General S. W. Steel, C.B., commanded the Madras one.

The whole force consisted of six regiments, Europeans, and twelve of Native Infantry, with a full complement of Artillery, together with Sappers and Miners; in all some 18,000 or 20,000 men.

On September 6 it was announced that active operations would begin on the 18th.

By September 27 the whole of the First Division had left Rangoon, and Brigadier Steel remained in command at that place.

On the 26th the 'Medusa' had left for Prome, carrying Major Fraser, B.E., and his officers, together with Captain Rundall, M.E., and his Sappers.

On the way up the river two steamers grounded, and detained all the other steamers for three days.

Admiral Austin was taken ill on October 5, and died on the 7th, ten miles distant from Prome.

On the 9th the expedition left the island at daybreak, and in two hours was under the fortifications of Prome.

The enemy opened fire on the steamers, which was steadily returned. During the day the steamers were employed in bombarding the place, to cover the disembarkation of the troops. By 5 P.M. H.M. 80th, the Sappers and Miners, and Artillery had landed with two guns and rested during the night.

The next morning (October 10), with H.M.'s 18th and 35th Madras Native Infantry, they proceeded to the pagoda, which was found deserted, and was at once taken possession of. General Godwin ascertained that ten miles east of Prome the Burmese had a large force, on which the garrison of Prome retired when we advanced.

On October 13 General Godwin returned to Rangoon, leaving Sir John Cheape in command at Prome, and Major Fraser, B.E., and Major Allan, Deputy-Quartermaster-General, were entrusted with the arrangements for the housing of the troops.

During the month of October Bandoola delivered himself up to Sir John Cheape, and was placed as a prisoner on board the

'Sesostris.' He had been ordered to appear before the king in the dress of a woman, as a disgrace for losing his army in July, which order he very naturally refused to obey.

On the night of December 8 the Burmese made a most daring attack on Prome. About midnight three signal-guns were fired rom the enemy's advanced post. This, of course, at once roused our troops. The fire of musketry and jingals soon announced that our piquets had been attacked. The attack was rapid, but our piquets were soon reinforced, and every point occupied.

A detachment of the 35th Native Infantry held Narwing, to the north of Prome, supported by piquets of H.M.'s 18th and 51st. The Madras Sappers, with double piquets, supported the 40th Bengal Native Infantry and 18th Royal Irish, on the heights on our right, south of the town.

The enemy made repeated attacks, but they were as often driven back. These attacks were continued until dawn of day; the enemy, finding all their efforts vain, drew off at daylight, but appeared again shortly afterwards, on observing a body of Sappers going out to work, and they drew up in regular order across a plain. A covering party of Europeans was then sent forward, and the Burmese then retired on Gathay Mew.

In the afternoon Sir John Cheape moved out with a small force close to the advanced post of the enemy, but, finding it too late to attack, returned, having made a close reconnaissance of the position.

Early in February it was resolved to send a force against a robber chieftain, Nya-Myat-Toon, who had captured our boats, and had been successful in several dacoities. This party was under the command of Captain Loch, R.N., C.B. It consisted of 185 seamen, 62 marines, and 300 of the 67th Bengal Native Infantry, with 25 officers and two 3-pounder guns. They advanced from Donabew, and proceeded a long distance without observing any signs of the enemy, when they arrived on the banks of a small nullah. The road was very narrow, and owing

to the thick brushwood, and bamboo spikes in the ground, it was impossible to deploy. As soon as the leading files appeared they were assailed by a heavy fire from a masked stockade. All men in front were at once struck down. Captain Loch was himself struck by a bullet, which smashed his watch and passed through his body. Lieutenant Kennedy was killed, and Captain Price, 67th, mortally wounded.

A retreat was now resolved on; and this was carried out in a cool, able, and gallant manner, under most trying circumstances. Out of 225 Europeans who advanced to the attack, six were killed and fifty-three wounded. The Bengal regiment lost five killed and eighteen wounded. The guns had to be abandoned and were spiked. Captain Loch died of his wounds on February 6.

Shortly after, a force of about 1500 men with two guns was sent under Sir John Cheape to retrieve this defeat. The Brigadier-General left Prome to proceed against Myat-Toon. He had with him 200 of H.M.'s 18th Royal Irish; 200 of H.M.'s 51st; Rifle Company of 67th Bengal Native Infantry; 200 4th Sikh Locals; seventy Madras Sappers under Lieutenants Mullins, M.E., and Trevor, B.E. Two guns—one 24-pounder howitzer and a 9-pounder field gun—with some rocket tubes served by the Madras Horse Artillery.

Sir John Cheape landed, and collected his forces at Heuzadah, about thirty-five miles north of Donabew.

The force left Heuzadah on the 22nd, expecting to reach Myat-Toon's position in three or four days, and took only seven or eight days' provisions. On the 26th the General found himself still a long way from the stronghold; so, fearing a failure of provisions, Sir John made a flank movement to Zooloom, where he arrived on the 28th after a very harassing march. The General now waited at Donabew for reinforcements expected from Rangoon, as well as to make every preparation.

On March 7, every arrangement having been made for an advance on Myat-Toon's position at Kyon Razeem, the force left

at 2 P.M., the Sappers marching immediately in rear of the advanced guard.

The party now consisted of 500 Europeans, 500 Natives, two light guns, three rocket tubes, two mortars, and seventy Sappers, with a detachment of Irregular Horse.

On reaching Akyoo at 5 P.M., they found a broad nullah thirty yards wide. Rafts had been made at Donabew by the Sappers, and brought up in carts. These carts having arrived, and a favourable site having been selected, the Sappers, though under a considerable fire of musketry and jingals, formed a raft for the passage of the guns and troops in about two hours. By two hours after daybreak on the 8th the second raft was completed, and the Brigadier directed the passage to be commenced. The two rafts filled with troops were rowed across by the Sappers, a rope being carried across by each raft and fastened to trees on the opposite bank, in order to work the rafts backwards and forwards. By midnight the whole of the troops had been carried across.

On the 9th the troops marched at 9 A.M. On reaching Kyon-tanan in the evening, they commenced constructing the rafts for crossing the nullah at that place, but, the Brigadier-General considering some cover requisite for the safety of the piquets, which had been sent across in boats, they threw up a small breast-work for this purpose.

'On the 10th, at daybreak, the nullah was bridged by means of the two rafts. The troops and light baggage having crossed, the bridge was broken up, and the guns transported on the detached rafts, the whole being carried across by half-past four.

'On the 11th the force started at the usual hour. The Burmese had obstructed the work by cutting down trees; consequently the Sappers were hard at work from 11 A.M. till dusk removing the trees and clearing jungle.

'On the 12th the force retraced its steps to Kyon-tanan, as the way could not be found, and provisions were failing again.

Having returned, the Sappers were employed in putting together one of the rafts, after which thirty of them, under Lieutenant Trevor, B.E., started with the detachment, proceeding to Donabew for provisions, and the rest were employed in bringing up materials for hutting the troops. Meanwhile the troops were put upon half rations. The force remained at Kyon-tanan until the 16th, when Colonel Sturt, who commanded the force sent to Donabew for provisions, returned. Cholera had in the meantime attacked the force, and there were thirteen deaths in one day.

'At 2 P.M. on the 17th, the right wing, under Major Wigston, 18th Royal Irish, was sent on the old road, the Sappers accompanying him for the purpose of clearing the road for the advance of the main column.

'On the following morning the road was found to be entirely blocked up with felled trees. These, however, the Sappers, after great exertions, succeeded in clearing away as far as the lake stockade, which was stormed a few minutes before sunset, with the loss of one officer and five men wounded.

'On the 18th, at daybreak, the rest of the force started, leaving the sick and provisions in a small stockade at Kyon-tanan. They joined the right wing at the breastwork, and the sick and wounded were sent back to Kyon-tanan.

'The columns continued their march, the left wing under Colonel Sturt in front, till they came to the second stockade about 4 P.M.'

The second stockade was gallantly carried by H.M.'s 51st King's Own Light Infantry, and 67th Bengal Native Infantry. Our loss was Lieutenant Boileau and one Sepoy of 67th killed, and one ensign 51st, and six Sepoys, 67th, wounded. At 5 P.M. the force was encamped a mile further on. Cholera was raging in camp.

'At 7 A.M. on the 19th the General was advancing with his troops, the right wing in front. Having gone out a mile, the

enemy were found in a breastwork or stockade on the opposite side of the nullah (third stockade). The guns were shortly got into position, and opened a well-directed fire which gradually became heavy on both sides.'

The third stockade was an extremely strong position. Its length was some 1200 yards, its left flank was protected by a morass, and along the whole front there was a nullah with a good deal of water and soft mud at the bottom.

The ground near the right flank was nearly dry, and was covered by an abattis, which was penetrable with extreme difficulty even after the capture of the stockade, and was altogether impracticable to troops under fire.

The only entrance to the stockade was a narrow path, across which at intervals pits had been dug, and this path was commanded by the two guns captured from the previous expedition, and by several jingals. The fire of the enemy on the path leading up to the stockade was so heavy that the advanced party did not succeed in carrying it. Our troops sustained a heavy loss in the attempt to make good their way. A 24-pounder howitzer was at last brought up (the men of the 51st assisting to drag it along), and opened an effectual fire on the enemy at a range of about twenty-five yards. Major Reid, B.A., who brought up the gun, was immediately wounded, but the fire was still kept up by Lieutenant Ashe. The right wing was now reinforced from the left, and the troops advanced in a manner that nothing could check, and the stockade was carried. Many of the enemy fled in confusion, but some stood to be shot or bayoneted. Myat-Toon was now entirely defeated.

Our loss was severe: eleven bodies were buried on the spot, and nine officers and seventy-five men were wounded in this well-fought action, which lasted about two hours. Lieutenant Trevor [1] was slightly wounded on this occasion, as also several Sappers. Trevor with Corporal Livingstone and Private Preston, H.M.'s

[1] Now Major-General Trevor, V.C.

51st, was the first to enter the enemy's breastwork. The two guns lost by the former expedition were now recaptured. The enemy had used them with great effect. In attempting to carry off one of them, twelve of the enemy were killed by a discharge from our 9-pounders. The enemy suffered heavily, but the chief Myat-Toon with a few followers managed to escape.

Sir John Cheape says: 'His whole force and means were concentrated in this position, and I imagine he must have had 4000 men in these breastworks, which extended 1200 yards.' In his Despatch Sir John thus mentions the services of the Engineers and Madras Sappers:—

'To Lieutenant Mullins and the detachment of the Madras Sappers and Pioneers the greatest credit is due; the work executed by the men was most laborious, and the zeal and talent by which their energies were directed by Lieutenant Mullins are most creditable to him. He was ably seconded by Lieutenant Trevor, and I am mainly indebted to these officers and the men under them for enabling the troops to reach the enemy's position.' Our losses in the expedition were heavy considering the smallness of the force: two European officers killed, Lieutenant Taylor,. 9th Madras Native Infantry, and Ensign Boileau, 67th Bengal Native Infantry; also one native officer, and eighteen warrant officers, non-commissioned officers and men, and one Lascar; total twenty-two. Twelve European officers wounded: Lieutenant Cockburn, mortally, seven severely, and four slightly; also one native officer, ninety-three warrant officers, non-commissioned officers and men, and two Lascars; total 108, or 130 killed and wounded.

On the 22nd the force was ordered to return; 4 P.M. was the hour fixed for the departure, but at 2 P.M. the village of Kyon-Razeem caught fire. Sir John Cheape was able to cross, but with difficulty, and even then not without being scorched. The fire spread with great rapidity. The sick, guns, and ammunition had luckily already been sent off. Eventually all were collected

in Colonel Sturt's camp, and the force marched to Kyon-banao the same evening. On the 23rd a nullah was crossed to Akyoo, and next day Donabew was reached.

Our total casualties amounted to nearly 250, as upwards of 100 died of cholera.

On the departure of General Godwin the command-in-chief devolved upon General Cheape. At the termination of the campaign he was created a K.C.B., and in 1865 he was advanced to the dignity of G.C.B. He died in 1875, aged eighty-three years.

[From Vibart's *History of the Madras Engineers*; Porter's *History of the Royal Engineers*; Hunter's *Imperial Gazetteer of India*.]

MAJOR-GENERAL SIR FREDERICK ABBOTT, C.B.

FREDERICK ABBOTT was the second son of Alexius Abbott, Esq., of Blackheath, a retired Calcutta merchant, and of Margaret Welsh, granddaughter of Captain Gascoigne, a descendant of the celebrated judge. He was born, June 13, 1805, at Littlecourt, Hertfordshire, and was one of five brothers, all of whom distinguished themselves in the service of their country.

As a boy he was bold, strong, and active. He was educated at Warfield, Berks, and afterwards went to Addiscombe. He left Addiscombe in the summer of 1824 with a commission in the Engineers.

From Addiscombe he went to Chatham and worked under Colonel (afterwards Sir Charles) Pasley.

When he reached India, the first Burmese War broke out, and he was employed as Assistant Field Engineer under Captain (afterwards Sir John) Cheape. One day he led a storming party in assaults on three stockades; on this occasion he performed a feat of valour which in these days would have earned him the distinction of the Victoria Cross. On the third occasion, when

he had climbed to the top of the parapet, the ladder broke, and he and one Grenadier were left exposed to the enemy's fire. He noticed that a strong bamboo had inadvertently been left resting on the top of the parapet, sloping down across the wet ditch to the interior. Passing his left arm over this with his sword in his right hand, he began to slide prosperously, when the Grenadier, trying to leap the ditch, collided with him and both fell into the water. Abbott scrambled out and assisted the Grenadier, who was encumbered with arms and ammunition, while the garrison seemed petrified by their audacity. Once on *terra firma* the Grenadier charged the defenders, two of whom seized his musket, from which a third unfixed his bayonet, while the fourth charged with his spear. Abbott cut this man down and had passed his sword through the body of another, when, a fresh ladder having been placed, the storming party entered the stockade, and the garrison fled.

On another occasion he captured a beautiful white pony belonging to Maha Bandoola, the Commander-in-Chief of the Burmese. His services in Ava are thus referred to in Sir Alexander Campbell's Despatch on the action of December 2, 1825: 'Lieutenants Underwood (Commanding Engineer) and Abbott, of the Bengal Engineers, who had closely reconnoitred the enemy's position, both volunteered to lead the columns, and were, I am sorry to say, both slightly wounded on that service.'

After his return from Burmah he was employed on public works, for in 1828 we find him at Neemuch, where he had relieved Captain George Thomson.

In 1832 he was promoted Captain, and in 1835 he married Frances, youngest daughter of Lieutenant-Colonel Cox, R.A., and widow of Lieutenant-Colonel H. De Burgh, Bengal Cavalry.

In the beginning of 1838 he went to England on leave, and returned to India in 1840. He was shipwrecked at the Mauritius on the voyage out. In 1841 he was appointed Superintending Engineer of the North-West Provinces. As such he was virtually

the responsible head of the canals, military works, and ordinary public works of the Province, which then included what is now part of the Punjab. By this time we were again at war. To save the garrison at Jellalabad, an army under Sir George Pollock was formed, and Abbott was selected to be its Chief Engineer. As his brother Augustus Abbott was at Jellalabad, this appointment must have been peculiarly grateful to him. They advanced to Jellalabad, whence, after a prolonged halt, the combined troops marched to Kabul, and after forcing the Khyber Pass and several severe actions, finally occupied it. After the murder of Sir William MacNaghten, our Envoy, his body had been exposed to the contempt and indignities of a fanatical mob in the celebrated covered bazaar of the city, and it was resolved, as a retributive measure, to utterly destroy the beautiful bazaar, and the mosque at one end of it. This duty devolved on Abbott, and the task was to him most distasteful. Every person of feeling must sympathise with him, for the destruction of beautiful and useful works of art is an act of barbarism. The demolition in no way affected Akbar Khan and his associates, but merely injured future generations.

The destruction was effected by barrels of gunpowder, and his assistants in the demolition were Captain T. W. Robertson and Lieutenant T. R. Becher of the Engineers, and Lieutenants Orr and Cunningham of Broadfoot's Sappers. For his services in Afghanistan, he received his brevet of Major.

On his return to India he resumed his duties as Superintending Engineer, and continued in this department till January 1, 1846, when he was attached to the Engineer Department of the Army of the Sutlej. When Abbott was appointed, our army was in position near Sobraon, where the Sikhs were entrenched in force, and had a bridge of boats across the Sutlej. The Governor-General, Sir Arthur Hardinge, was at Ferozepore, twenty miles distant, and Abbott was chiefly employed under his orders. He was placed in charge of the Military Bridge Establishment, and was on important occasions the bearer of messages from the

Governor-General to the Commander-in-Chief. He carried despatches on February 7, and next day Sir Hugh Gough called a council of war and laid before it the Governor-General's proposals. The Artillery representatives accepted them, and Gough in great delight proposed to attack the Sikhs next morning, but deferred operations till the 10th, because ammunition was not ready. The decisive battle was fought in the early morning of the 10th, and by 11 A.M. we had lost 2383 killed and wounded; while the Sikhs, at the lowest estimate, lost 8000, and at the highest double that number.

The victory laid the Punjab at our feet. After the battle Abbott bridged the Sutlej, and got great credit for the rapidity with which he effected it; his services are thus mentioned in despatches: 'I have to acknowledge the services . . . of the following officers, and to recommend them to your Excellency's special favour, viz.: Major F. Abbott, who laid the bridge by which the army crossed into the Punjab, and who was present at Sobraon and did excellent service.'[1] 'On the following day the bridge of boats was nearly completed by that excellent officer, Major Abbott, of the Engineers.' He obtained the medal for Sobraon, and was made Brevet Lieutenant-Colonel and C.B. in June 1846. He retired from the service October 1, 1847, when he was only forty-two.

James Thomason, Lieutenant-Governor of the North-West Provinces, thus wrote to him: 'The Lieutenant-Governor is desirous of seizing this opportunity . . . of offering to you his acknowledgments for the valuable aid you have afforded to the local administration on all questions involving scientific knowledge during the period you have filled the post of Superintending Engineer of the North-West Provinces. . . . Your reports on Public Works, whilst you continued in charge, bore evidence to the care and ability with which you discharged your duties, and they continue to be now the text-books by which subsequent operations

[1] Despatch of Commander-in Chief of February 13, 1846.

have been regulated. . . . The Lieutenant-Governor felt it to be his duty thus to place on record the sense which he entertains of the liberality and public spirit which you have evinced in promoting the good of the people and the best interests of the public administration connected with your profession which fell under his cognisance.'

Lord Hardinge wrote: 'I cannot, however, allow you to retire from India without expressing my sense of the loss which the East India Company's service will sustain by your retirement. . . . In peace your conduct was regulated by the most anxious spirit of carefulness and integrity in the expenditure of the public money, and in the efficiency of the public works; and when the war broke out and you hastened to join this army, I knew I could not confide to any officer of the army better than to yourself the important operations of making the arrangements for the passage of the Sutlej, one of the most difficult rivers in the world, over which it was absolutely necessary that we should have the means of entering the Punjab. . . . At this moment, when you are about to retire for ever from that branch of the Indian army, of whose professional acquirements I entertain the highest opinion, it is gratifying to me to bear my testimony to your distinguished services, and to express my professional respect and personal regard for an officer who has in peace and in war so ably contributed to uphold the reputation and the glory of the Indian army.'

Three years after his retirement he was appointed Lieutenant-Governor of Addiscombe. In 1854 he received the honour of knighthood, was made Hon. Major-General in 1858, and held the Addiscombe appointment until this college was closed in June 1861.

Sir Frederick was appointed a member of the Royal Commission on the Defences of the United Kingdom in 1859, and in 1866 was made a member of the Committee to inquire into the organisation of the Royal Engineers establishment at Chatham. He was also a member of the Council for Military Education, but resigned in

1868. He attended the examination of H.R.H. Prince Arthur (now Duke of Connaught), the subjects being Fortification, Artillery, and Surveying. His Royal Highness was reported to have paid great attention to the talented and zealous professors of the Royal Military Academy, and to have proved himself to be well qualified for a commission in either of the scientific corps of her Majesty's service. Sir Frederick took much interest in microscopical observations and in studying the polarisation of light.

On February 7, 1890, Sir Frederick Abbott had a stroke of paralysis, followed by a second on April 15 of the same year. He recovered partially and passed the remainder of his days quietly at Bournemouth, where he died without great suffering. His long life was well spent, and his career was in every way honourable and useful to his country. He died on November 4, 1892, in his eighty-eighth year. During the time that he was Lieutenant-Governor of Addiscombe he endeavoured in every way to improve the condition of the college and the cadets. His greatest service to this place was the abolition of the system of espionage to which the cadets had been previously subjected. Further, he encouraged athletic exercises, and six months after his arrival he caused the gymnasium to be erected.

[From Vibart's *Addiscombe: its Heroes and Men of Note.*]

LIEUTENANT-COLONEL JOHN ANDERSON

ENTERED the H.E.I. Company's Military College, Addiscombe, in 1826, and was appointed Lieutenant in the Bengal Engineers on September 28, 1827. He served in Afghanistan in 1838, and was promoted to be Captain in November 1843, and Major by brevet in 1854. He obtained his regimental Majority in May 1855, and at the time of the outbreak of the Indian Mutiny was stationed at Lucknow as Chief Engineer of Oude. He was Chief Engineer

during the defence of Lucknow until the date of his death, which took place on August 11, 1857, and was owing to his unceasing exertions and to the hardships which he underwent during the defence. Major Anderson designed the defences of the Muchee Bawan and Residency, and, until shortly before his death, directed the construction of the various works and repairs.

The general history of this gallant defence is too well known to need to be repeated; but it will prove interesting to insert the Report of Lieutenant J. C. Anderson (who was Garrison Engineer at the close of the siege).

On the defences of the Residency—

'The outbreak at Meerut and Delhi, and reports of general disaffection among the Sepoys, caused Sir Henry Lawrence to take immediate measures for the defence of the place. Some time previously he had selected the Muchee Bawan as a site for our magazine and stores, and judging it from its commanding position, and the moral effect that the occupation of it would exercise over the city, he, in the first instance, proceeded to strengthen it. The works were commenced on May 17, and carried forward with unremitting energy by Lieutenant Innes, under the general direction of Major Anderson, Chief Engineer, until the commencement of the siege. The defence of the Residency was also commenced, though at first it received a secondary share of attention. It was not till after the mutiny in cantonments (May 30), and the subsequent mutinies of corps in the districts, that it became apparent that we should have probably to defend ourselves against a combined attack of mutineers and rebels from the country and city. The more clear this became, the more clearly the inadequacy of the Muchee Bawan, as a fortified position, became apparent. It was also seen that if the mutineers came on in great force we had not sufficient hands to man both it and the Residency; and it having been ascertained, after full consideration, that the defects of the Muchee Bawan, both as regards defensive measures and shelter of troops and the large European

community, were very great, Sir Henry Lawrence made up his mind to abandon it on the investment of the city by the enemy. On this being decided (June 11), the defences of the Residency were prosecuted with vigour. Prior to this, the Chief Engineer was doubtful as to the extent of the force he had to shelter within the works, but now he could form a definite plan, and he lost no time in forming a connected line of defensive works round the buildings he thought it necessary to occupy. The Residency compound was first protected by a line of parapet and ditch across it, a strong battery, since named "Redan," was constructed in a corner of the garden, which furnished a command over the iron bridge. A battery, called the "Cawnpore," was constructed at the opposite point, enfilading the Cawnpore Road, and was then designed chiefly as a barrier to the approach of mutineers from Cawnpore. Two other batteries were partially constructed—one between Gubbins's and Ommaney's compounds, the other between the slaughter-house and sheep-pen—but neither were ready at the commencement of the siege, and want of labour prevented their being completed afterwards. Heavy and light guns and mortars, more or less protected by parapets, were placed in various positions intermediate to the above-mentioned principal batteries. Various changes occurred from time to time during the siege, a gun or mortar having been frequently required to silence an enemy's battery, and withdrawn when the object was accomplished. Mr. Gubbins, by means of labourers procured by his subordinates, carried on the defence of his own compound, and the general line round our positions was continued from battery to battery, and house to house, by abattis (in lanes), and by parapets and ditches, or stockades.

'Outside our line of works, also, a great amount of labour was required. Masses of buildings extended to within a few feet of us in nearly every direction, and though some of them would act as traverses to us from the enemy's batteries, the majority were a most undoubted source of annoyance to us, and it was necessary

to proceed with their removal as vigorously as our means permitted. Several mosques which occupied positions commanding us were left alone, much to our future injury; but, I believe, the reason that prevented their removal was a good one, namely, the danger of precipitating an outbreak before we were prepared for it. But, apart from this, the demolition of private buildings was far from complete.

'The affair at Chinhut brought the enemy upon us earlier, I believe, than was anticipated by any individual of our force, and our command of labour having been limited, we had to close our gates with nothing in many places separating us from the besiegers but the width of the street. The houses that remained became nests of rebels, and, besides forming secure starting points for their mines, enabled them from under shelter to keep a deadly fire of musketry upon us day and night, and it is to it, and not to round shot, that we have to attribute the greater part of our casualties. The latter was mainly injurious in destroying the buildings occupied by our troops and camp-followers, and though the loss of life, considering the amount of battering they sustained, was much less than was to be expected, it was a constant source of danger and annoyance to the garrison, and the repair of damage entailed heavy labour on men who were weakened by exposure and want of rest.

'The enemy proceeded to invest the place immediately on the return of our force from Chinhut on June 30. The Muchee Bawan was still garrisoned by troops, though the treasure and the greater portion of munitions and stores had been previously removed to the Residency, and it now became an object of primary importance to withdraw the garrison without loss. A telegraphic message was communicated to Lieutenant Innes, the Engineer officer (Bengal), to the effect that the powder in the magazine, about 200 barrels, was to be used in blowing up the fort, and that the garrison was to leave at midnight on July 1. This order was carried out with perfect success, and the garrison marched into

our gates without the loss of a man. The Garden battery was one of the first established by the enemy. It played on the guard-house at the Cawnpore battery, the battery itself, Brigade Mess, Anderson's, and Judicial Commissioner's. The combined fire of heavy guns and musketry on the Cawnpore battery became so deadly that our guns could not be served, and eventually it was thought necessary to withdraw them, and to leave the positions to be defended by musketry, and to repair the parapets as fast as they were damaged by the enemy's round shot.

'At the beginning of the siege, the 8-inch howitzers which fell into the enemy's hands at Chinhut were placed out of sight of our guns on the opposite bank of the river, near the bridge of boats, and kept up a destructive fire on the Residency. It was by one of the shells from it that Sir Henry Lawrence was killed. Batteries were also established by the enemy on the road leading from the iron bridge, in front of Gubbins's house, the Brigade Mess, and Post Office, and at the clock tower, and all the buildings were more or less damaged by them. A portion of the Residency was battered down, and six men were buried in the ruins. Many of the buildings were reduced to such a state as to appear to be quite untenable, but the garrison continued to occupy nearly all; and though the defences of the post have been very much weakened by the continued and heavy fire, not a single one has been abandoned; on the contrary, several buildings (Financial Commissioners', Sago's, and Innes's) have been occupied and strengthened since the commencement of the siege. When the enemy found that neither repeated attacks nor the destruction of our buildings could force us from our posts, he had recourse to mining. This had been anticipated, but the Chief Engineer, acting under the suggestion of the late Captain Fulton, B.E., would not take the initiative, as he apprehended that our enemies would at once follow our example, and that the unlimited command of labour they possessed would give us a poor chance of competing with them.'

For his arduous services during the defence of the Residency

Major Anderson was promoted Lieutenant-Colonel in the 'Gazette' of September 20, 1857, it not being known that his death had taken place nine days earlier.

CAPTAIN GEORGE WILLIAM WRIGHT FULTON

Was a cadet at Addiscombe in 1841, and was appointed Second Lieutenant in the Bengal Engineers on June 9, 1843, and was promoted Lieutenant in August 1847. He served in the Punjab War, 1848–49, and held various posts in the Public Works Department. At the outbreak of the Indian Mutiny he was stationed at Lucknow, and was one of the most gallant defenders of the Residency.

He was one of the leading spirits of the defence, active, resolute, and cheerful under all difficulties.

'On July 20 the first mine was exploded by the enemy at the "Redan." It preceded a general attack, and, both as regards direction and distance, was a complete failure.

'This was followed by one on the 27th, at the angle of the Sikh quarters, and is the only one from which any loss of life on our side has been sustained. The sound of the mining had not been heard, owing to the proximity of the cavalry horses, and the guard were completely surprised. Seven gunners were killed on this occasion.

'Two other mines at the building occupied by the Martinière boys, and at Sago's, were also exploded on August 10, but, beyond breaking the outer line of walls, did no damage.

'The enemy in no case showed any great alacrity in assaulting the breaches, and we soon formed intrenchments in rear of them.

'We had meanwhile commenced countermining, and on August 5 foiled a mine of the enemy's against the guard-house at the Cawnpore battery; and since then, up to the arrival of the relieving force, we have been incessantly employed in mining and

countermining. We have generally worked into their galleries, and after having frightened the miners away have destroyed them; or in some cases we have blown in their galleries by charging and firing our own. I need hardly add that this was a service of danger.

'Two of our mines for directly offensive objects require separate notice, the one at Sago's to the enemy's guard-room, which we blew down with a loss to them of, it is supposed, between twenty and thirty men. The second to Johannes's house, in which we destroyed above eighty of the enemy. The explosion was followed by a sortie to cover the demolition of the remainder of the house and one adjoining, which object was effectually accomplished, and relieved us from the destructive fire of many of the enemy's best marksmen. I may mention that several other sorties were made on other occasions, and with equal success.

'We had, on the arrival of the relieving force, fifteen galleries ready for countermining further operations of the enemy. Several of the enemy's galleries have since been discovered and destroyed.

'I believe I have now noted every measure of importance with reference to the defence and attack of the place, in an engineering point of view, and it remains for me to add the means at our disposal for carrying on the work.

'During the early part of the siege we had working parties of H.M.'s 32nd Regiment; on one work during the night I have had forty-two men. The soldiers, however, had their other duties to perform; they were exposed to the rain, and were very often under arms, which prevented them having a proper amount of rest. They could, therefore, have very little physical strength left to work in the trenches, and, as the siege progressed, their numerical strength became so much reduced, that it was necessary to give up European working parties almost entirely, and to depend on the Sepoys. The latter came forward most

willingly, and I cannot speak too highly of the way in which they worked. They have also been of material assistance in our mining operations, and a party of the 13th Native Infantry, thanks to the good management of Lieutenant Aitken, have constructed a battery for an 18-pounder, worked the gun, and dug a shaft and gallery at their own post. There has been but one squad of European miners, eight men, under Sergeant Day, all of whom have worked with the most unremitting zeal throughout.

'As regards general superintendence, the late Major Anderson, R.E., Chief Engineer, designed the defences of the Muchee Bawan and Residency, and, until shortly before his death, directed the construction of the various works and repairs.

'Captain Fulton became the senior Engineer officer on the demise of Major Anderson on August 11. He had constructed the greater portion of the defences, powder-magazines, &c., and up to the day of his death displayed the most unremitting energy, in spite of bad health, in advancing our work. In particular, he took a most active part in foiling the enemy's attempt to destroy our advanced post by mine; and the manner in which he conducted the blasting operations during our sorties invariably excited the admiration of all who were present, officers and men.

'In the performance of the above-mentioned engineering operations generally, he received the most able and untiring support from Lieutenants Hutchinson, Innes, Tulloch, and the late Lieutenant Birch, and latterly, since Captain Fulton's death, I have received much assistance from Lieutenant Hay, Assistant Field Engineer.

'Captain Fulton was killed on September 14 by a round shot which struck him on the head, and the services of this distinguished and brave officer were thus lost to his country.'

[From Report by the late Lieutenant J. C. Anderson, Chief Engineer of the Lucknow Garrison after the death of Captain Fulton.]

ARTHUR WILLIAM GARNETT (1829-61),

YOUNGER son of William Garnett, of Westmoreland, Inspector-General of Inland Revenue, was born on June 1, 1829, and educated at Addiscombe College, where he obtained his first commission in 1846, and proceeded to India in 1848 as a Lieutenant of the Bengal Engineers. He was appointed Assistant Field-Engineer with the army before Mooltan, and wounded while in attendance on Sir John Cheape reconnoitring the breaches; he was able, however, to take charge of the scaling-ladders in the subsequent assault. He joined the army under Lord Gough, held the fords of the Chenab during the victory of Gujerat, and went forward with Sir Walter Raleigh Gilbert's flying column in pursuit of the Afghans. Having taken part in the first survey of the Peshawur Valley with Lieutenant James T. Walker (afterwards Surveyor-General of India), he was next engaged on public works at Kohat, where in 1850 the Sappers employed under his command in making a road to the Kotul were surprised in their camp by the Afridis. Garnett and Lieutenant (afterwards Major-General Sir F. R.) Pollock, who was also stationed at Kohat, were surrounded; he held their position until the arrival of a relieving force from Peshawur under Sir Colin Campbell (afterwards Lord Clyde), accompanied by General Charles J. Napier, by whom the Kohat Pass was forced.

Garnett reconstructed and strengthened the Fort of Kohat, designed and built the fort at Bahadoor Kheyl for guarding the salt mines, as well as barracks, forts, and defensive works at other points on the frontier, including 'Fort Garnett,' named after him. He planted forest trees wherever practicable, constructed bridges, roads, and other works under circumstances of extraordinary difficulty, and in spite of serious obstacles mentioned in the Public Report of the Administration, where the entire credit of the works is assigned to Lieutenant Garnett, he 'has made very good roads,

which he could not possibly have done without the possession of hardihood, temper, and good judgment.' He was constantly interrupted by being called upon to take the field with the several expeditions in the Derajât, Meeranzaie Valley, Eusofzaie country, Koorum Valley, and Peiwar Kotul, &c., where there was frequently hard fighting. During the Mutiny Garnett was kept at his post on the frontier, where his experience and influence with the hillmen were of the greatest value. He came to England on leave in 1860, and was occupied in the examination of dockyard works, with a view to his future employment in the construction of such works if required at Bombay.

On his return to India in 1861, shortly after his marriage to Mary Charlotte Burnard of Crewkerne, by whom he had a posthumous daughter, and while temporarily acting as assistant to Colonel Yule, C.B., then Secretary to Government in the Department of Public Works, he was attacked with pleurisy, and died in his thirty-second year after a few days' illness. He was buried in St. Paul's Cathedral, Calcutta, where his memory is recorded by a monument erected by his brother officers, other monuments being also placed in the church at Kohat, which he had built, and in the church of Holy Trinity at Brompton. He was promoted to the rank of Second Captain from August 27, 1858.

[Government despatches in *London Gazettes*; *Professional Papers, Corps of Royal Engineers; Journal of Siege of Mooltan*, 1848-49; Series of *General Reports on the Administration of the Punjab Territories from* 1849 *to* 1859.]

RICHARD BAIRD SMITH (1818-61),

Chief Engineer at the Siege of Delhi, born on December 31, 1818, was son of Richard Smith (1794-1863), surgeon, Royal Navy, of Lasswade, Midlothian, where he was in good private practice, by his wife, Margaret Young (1800-29). He was educated at Lasswade School and at Dunse Academy, entered

COLONEL RICHARD BAIRD SMITH, C.B.

the Military College of the East India Company at Addiscombe on February 6, 1835, and passed out at the end of his term, obtaining a commission as Second-Lieutenant in the Madras Engineers on December 9, 1836. He went to Chatham for the usual course of professional instruction on February 2, 1837, and left on October 4, having obtained six months' leave of absence to enable him to improve himself in civil engineering and geology.

He arrived at Madras on July 6, 1838, and was posted to the corps of Madras Sappers and Miners, joining the headquarters in the Nilgiri Hills on the 13th of the same month. He was appointed Acting-Adjutant to the corps on February 20, 1839. On August 12, on an increase to the establishment of the Bengal Engineers, Baird Smith was transferred to that corps, and on September 23 was appointed Adjutant. A week later he became temporarily an assistant to Captain M. R. Fitzgerald of the Bengal Engineers in the Canal and Iron Bridge Department of the Public Works.

On January 6, 1840, Baird Smith was appointed temporarily a member of the Arsenal Committee. On August 12 he was appointed assistant to the Superintendent of the Doab Canal, Sir Proby Thomas Cautley; on September 28 he went to Dakha to relieve Captain Hunter in the charge of the 6th company of the Bengal Sappers and Miners, on the march from Silhet to Dinapur. He was relieved of this charge on January 21, 1841. He was promoted to be First Lieutenant on August 28, 1841. On October 30, 1844, his meteorological observations, which were considered 'highly creditable,' were mentioned in a despatch from the Bengal Government. When Sir Proby Cautley commenced the Ganges Canal works in 1843, Baird Smith was left in charge, under him, of the Jumna Canal.

On the outbreak of the first Sikh War, Baird Smith, with the other officers of the Canal Department, joined the Army of the Sutlej. Although he made repeated marches, he arrived in camp

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a few days after the Battle of Ferozeshah (December 22, 1845). He was attached to the command of Major-General Sir Harry George Wakelyn Smith, whom on January 18, 1846, he accompanied to Dharnkote, and then towards Loodiana. He was with him at Badiwal and at the Battle of Aliwal (January 28, 1846).

In Sir Harry Smith's Despatch of January 30, he mentioned that 'Strachey and Baird Smith of the Engineers greatly contributed to the completion of my plans and arrangements, and were ever ready to act in any capacity; they are two most promising and gallant officers.'[1] Baird Smith returned with Sir Harry Smith to headquarters on the evening of February 8, and was on the Staff at the Battle of Sobraon on February 10. He received the medal for Aliwal with clasp for Sobraon. He was one of the selected officers who accompanied the Secretary to the Government of India on February 20, when the Maharajah Dhuleep Singh was publicly conducted to his palace in the citadel of Lahore. On the termination of the campaign Baird Smith returned to his canal duties. In addition, on August 12, 1848, he took over temporarily the duties of Superintendent of Botanical Gardens in the North-West Provinces during the absence of Dr. Jameson.

The second Sikh War gave him further opportunities of distinction. On November 26, 1848, he was attached to the Army of the Punjab, which was engaged in repressing the new Sikh revolt. He had previously joined the headquarters of the army at Ferozepore, and, having been detached with Brigadier-General Colin Campbell to watch the movements of Sher Singh on the Chenab, was with Campbell at the action of Ramnuggur on November 22. He then joined the force of Sir Joseph Thackwell, consisting of twenty-eight guns, four regiments of cavalry, and seven regiments of infantry, with baggage and trains. Under his direction the force crossed the Chenab at Wazirabad. The operation commenced at 6 P.M. on December 1, and was completed by noon on the 2nd. Baird Smith took part in the action

[1] Cf. *London Gazette Extraordinary, March* 27, 1846.

at Sudalapur on the 3rd, and marched with Thackwell to Helah, where Lord Gough with the main army arrived a fortnight later. He was present at the Battles of Chillianwalah (January 13, 1849), and of Gujerat (February 21); he was honourably mentioned for his services in the despatches reporting the passage of the Chenab and the Battles of Chillianwalah and Gujerat.

The war being ended and the Punjab annexed, Baird Smith returned to irrigation work on March 12, 1849. On February 10, 1850, he obtained furlough to Europe for three years. In October the Court of Directors commissioned him to examine in detail (with a view to reproduction in India) the canals of irrigation in Northern Italy. Baird Smith was promoted to be Brevet Captain on December 9, 1851.

In January 1852 he finished his Report on Italian Irrigation, which was printed under his supervision in two volumes and published the same year.[1] A second edition was issued in 1855. Presentation copies of Baird Smith's work were placed by the Sardinian Government in the Royal Academy of Science at Turin, and the King of Sardinia offered Baird Smith the insignia of a Knight of the Order of St. Maurice and St. Lazarus. The regulations of the British service did not admit of the acceptance of this honour, but the Court of Directors expressed to Smith their high satisfaction with the manner in which he had executed his commission, and permitted him to visit the irrigation works of the Madras Presidency before returning to duty. He arrived in Madras on January 1, 1853, and soon afterwards published a description of the irrigation works of that Presidency,[2] on March 10, 1853. Baird Smith was appointed Deputy-Superintendent of Canals, North-West Provinces. He was promoted to be Captain

[1] *Italian Irrigation, being a Report on the Agricultural Canals of Piedmont and Lombardy.* Edinburgh and London, 8vo, 2 vols. plates, atlas fol. First edition, 1852.

[2] *The Cauvery, Kistnah, and Godavery; being a Report on the Works constructed on these Rivers for the Irrigation of the Provinces of Tanjore, Guntoor, Masulipatam, and Rajahmundry, in the Presidency of Madras.*

on February 15, 1854, and the following day to be Brevet Major for service in the field. On May 17 he was appointed Director of the Ganges Canal and Superintendent of Canals in the North-West Provinces, in succession to Cautley, with the temporary rank of Lieutenant-Colonel while holding the appointment. Hence it was that at the outbreak of the Mutiny Baird Smith was living at Roorkee, the irrigation headquarters, some sixty miles from Meerut; and when Major Fraser, commanding the Bengal Sappers and Miners, was ordered, on May 13, 1857, to proceed with 500 men by forced marches to Meerut, he took his men, at Baird Smith's suggestion, by the canal, and was thus enabled to reach Meerut on the 15th in a perfectly fresh condition. Unfortunately they mutinied the next day, and Fraser was killed. Baird Smith meanwhile was assisting in defensive measures for Roorkee; the workshops were converted into a citadel, in which the women and children were accommodated, while the two companies of Sappers and Miners left at Roorkee were placed in the Thomason College buildings. It was known that the Sirmoor battalion under Major Reid was coming to Roorkee from Dehra on its way to Meerut; and fearing that the Roorkee Sappers would imagine their arrival to be a hostile demonstration against them, Baird Smith sent word to Reid to march straight to the canal and embark in boats, which he had ready for him, without entering Roorkee. Baird Smith's foresight and prompt action on this occasion were generally considered to have saved Roorkee, and the lives of the women and children there.

The Mutiny of the Sepoy Army of India in 1857 led to a war in which for the first time the officers and men of the Royal Engineers fought side by side with their *confrères* in the East India Company's service. The result of this war was the extinction of that great Company, and the absorption of its forces, including its Engineers, into the Imperial Army. The Siege of Delhi and the defence of the Lucknow Residency were both carried on by Engineers on the Indian establishment.

As the Siege of Delhi occupied so prominent a position in the events of the Indian Mutiny, it may perhaps not be out of place here to give a short description of the great siege in which Baird Smith took so distinguished a part.

The eastern face of the city rests on the Jumna, and during the season of the year when our operations were carried on the stream washes the base of the walls. All access to a besieger on the river front is therefore impracticable. The defences here consist of an irregular wall, with occasional bastions and towers, and about one-half of the length of the river face is occupied by the Palace of the King, and its outwork the old Mogul Fort of Selimgurh. The river may be described as the chord of an arc formed by the remaining defences of the place. These consist of a succession of bastion fronts, the connecting curtain being very long. The bastions are small, mounting generally three guns in each face, two in each flank, and one in embrasure at the salient. They are provided with masonry parapets about twelve feet in thickness, and have a relief of about twelve feet above the plane of site. The curtain consists of a simple masonry wall or rampart, sixteen feet in height, eleven feet thick at the top, and fifteen feet at the bottom. The whole of the land part is covered by a berm of a variable width, ranging from sixteen to thirty feet, and having a scarp wall eight feet high ; exterior to this is a dry ditch, about twenty-five feet in width, and from sixteen to twenty feet in depth. The glacis is a very short one, extending only fifty or sixty yards from the counterscarp ; using general terms, it covers from the besiegers' view one-half to one-third of the height of the walls of the place. The enceinte was about seven miles in circumference, enclosing a space of about three square miles. Such was the city of Delhi, and within its walls was massed an army of native troops, trained to war and discipline, excited to a pitch of religious frenzy, and burning with the hope of shaking off for ever the yoke of the Europeans.

The Delhi Field Force having planted its headquarters on the

old site of the British cantonments on the Ridge was now spreading itself out over the ground which it had conquered, in the manner best adapted for both offensive and defensive operations. Seldom has a finer position been occupied by a British Army; seldom has a more magnificent panorama turned for a while the soldier's thoughts from the stern realities of battle. The great city with its stately mosques and minarets lay grandly at our feet, one side resting upon the Jumna, and others forming a mighty mass of red walls standing out threateningly towards the position which we had occupied, and scattered all about beneath us were picturesque suburbs and stately houses, walled gardens and verdant groves, while the blue waters of the Jumna glittered in the light of the sun. But there was no room in the minds of our chiefs for such thoughts. They contemplated the position on which they had encamped with the keen eyes of practical soldiers, and looked round from their commanding position upon the ground which was to be the scene of their future operations; and it was a source of special rejoicing that our position was open to the rear, and that there were good roads leading down to it from which we could keep up a constant communication with the Punjab, now become our base of operations. It was the driest season of the year, and in common course the canal would have been empty. But the excessive rains of 1856 had so flooded and extended the area of the lake that it had not ceased even in the month of June to emit an unfailing supply of pure good water to fill the aqueduct in the rear of our position, water in which our people could not only bathe, but which they could drink with safety. Not only from a sanitary point of view was this flow of water advantageous, but in its military aspect it was equally favourable to offensive purposes. The Ridge which overlooks the city had been in part at least the site of the old Delhi Cantonment. The left of this rocky chasm rested upon the Jumna some three miles above Delhi, while the right approached the Kabul Gate of the city at a distance of about 1000 yards. The aspect of the Ridge was bare and rugged,

and the gritty friable qualities of the earth made it especially ill adapted for earthworks. On the left and in the rear of this Ridge obliquely to the point of attack, the tents of the English were pitched a little to the rear of the ruins of their old houses, which were concealed from the view of the besieged. The extreme left of the Ridge was so far retired from the main position as to be in little danger from his assaults. But our post on the extreme right invited attacks from the moment of occupation to the close of operations. The position on the extreme right was surmounted by an extensive building known as Hindoo Rao's House, which afforded good shelter and accommodation for the troops. Between the two extreme points of the Ridge were other important posts designed to occupy conspicuous places in the history of the coming siege. Near the point where the main road crossed the Ridge was the flagstaff tower. Here it was that our people on the fatal 11th of May had looked despairingly towards the city from which the signal for massacre was to come. A cart containing dead bodies, supposed to be the bodies of the officers of the 54th Native Infantry, was found in the building. Beyond Hindoo Rao's House to the rear was the beautifully situated suburb of Subzee Mundee (the Green Market) lying along the Grand Trunk Road. A cluster of good houses and walled gardens afforded shelter to the enemy and were indeed the key to our own position. Beyond the Subzee Mundee were several villages, which were among the worst of the local evils opposed to us, being near enough to the walls of the city to cover the enemy as they emerged from their stronghold. and advanced towards our position on the Ridge. A large house, known as Metcalfe's House, was to the left between the Ridge and the city. It stood on the bank of the river in an extensive park, and was almost buried in thick foliage. Between Metcalfe's House and the city was an old summer palace of the Delhi Emperors known as the Koodsia Bagh. In the intervening spaces were gardens and groves, intersected by deep ravines. These fine breadths of

luxuriant foliage were pleasant to the eyes. But it was too probable that they would prove favourable to the operations of the enemy. The gates of the city were ten in number, of which those known as the Cashmere Gate, the Jumna Gate, and the Kabul Gate, were those most easily assailable from our positions on the Ridge. It was only on one side of the great walled city that the English commander could hope to make an early impression. To invest so extensive a place with such a small force was an impossibility. It was as much as we could do to invest this front about one-seventh of the enceinte, leaving all the rest to the free ingress and egress of the enemy. This Palace, or, as it was usually called, the Fort, was situated about the centre of the river front of the city, one side almost overhanging the waters of the Jumna. The defences consisted chiefly of high walls and deep ditches, with very imperfect arrangements for flanking or even direct fire.

It was assumed that the bulk of the Meerut and Delhi forces—five Regiments of Infantry, one of Cavalry, and a company of Native Artillery, were now within the walls of the city, and it was not less certain that the Sappers and Miners from Meerut, the Allygurh Regiments, and large detachments of Native Infantry from Muttra, and regulars from Hansi, Hissar, and Sirsa, had swollen the stream of insurrection. To these might be added the King's Guards, and large numbers of native soldiers of all branches absent from their regiments on furlough; and these trained soldiers had at their command immense supplies of ordnance, arms, ammunition, and equipment. And against this great walled city thus garrisoned what had Barnard brought? Collectively it may be said that he had 3000 European soldiers and twenty-two field guns. Besides these there were two other bodies of reliable troops as good as Europeans—the Ghoorka battalions under Reid, and the Punjab Guide Corps under Daly. There were also 150 men of the Sappers and Miners. In Barnard's camp also were a regiment of Irregular Cavalry and a portion of another, but the fidelity of both was doubtful. Several schemes

for carrying the city by a *coup de main* were submitted to the General, but Barnard was not to be induced to swerve from the resolutions formed by the council of war: so again and again the younger and more eager spirits of the British Camp were disappointed, and our troops fell back upon their old daily business of repulsing the enemy's sorties. It must be admitted that there were many who shook their heads at the project of the *coup de main*, of which Greathed and Hodson had been the eager authors. It was said that although the force might have made its way into Delhi, only a small part would ever have made its way out. And yet, as weeks passed and no change came over the position of the army before Delhi, men began to chafe under the restraints which had held them back. Ever active among the active was Sir Henry Barnard. There was not an officer in camp in the flower of his youth who all through this fiery month of June worked day and night with such ceaseless energy as the Commander of the Delhi Field Force. He was not inured to the climate by long acquaintance with it. He had arrived in India at that period of life at which the constitution can least reconcile itself to such change. But although he bore himself thus bravely before men, the inward care was wearing out his life.

Again and again, day after day, the enemy came out to attack our posts with a uniformity of failure, of which it would be tedious to recite the details. On June 18, two Sepoy Regiments that had mutinied at Nusseerabad streamed into Delhi, bringing with them six guns. On June 23, the centenary of the Battle of Plassy, there was an attack by the enemy along the whole line. Hindoos and Mohammedans on that day united with common confidence and common energy against us. Day had scarcely broken when the enemy in greater force than had ever menaced us streamed out of the Lahore Gate, and again moved by our right towards the rear of our camp; but they met with an unexpected difficulty. The bridge over the Nujufgurh drain, by which they intended to cross their guns, had

been destroyed by our Engineers, and they were obliged to confine their attacks to the right of our position. The effect was that much of the day's fighting was among the houses of the Subzee Mundee, from which the enemy poured in a deadly fire on our troops. Again and again the British Infantry, with noble courage and resolution, bearing up against the heat of the fiercest sun that had yet opposed them, fought against heavy odds all through that long summer day. Fresh troops had joined us in the morning, but weary as they were after a long night's march, they nobly responded to the call. At noonday the battle was raging furiously in the Subzee Mundee, and Reid, cool and confident as he was in the face of difficulty and danger, felt that if not reinforced it would strain him to the utmost to hold his own. But the men fought on, and their stubborn courage prevailed against the multitude of the enemy. As the sun went down the vigour of the enemy declined, and at sunset the mutineers had lost heart, and found that the work was hopeless. Before nightfall the Subzee Mundee was our own, and the enemy had withdrawn their guns and retired to the city. But it had been a long weary day of hard fighting beneath a destroying sun, and our troops were so spent and exhausted that they could not follow the retreating enemy. It was one of those victories of which a few more repetitions would have turned our position into a graveyard, on which the enemy might have quietly encamped, and hurled their regiments against us with unexampled fury and self-devotion, in full assurance of the re-establishment of native rule from one end of India to the other. But it was all fruitless—they were repulsed on all sides. It is regretted that the details of the siege cannot be entered into here. It was one long protracted period of resistance on our part of the few against the many; but there was never any despondency on our side, although our numbers were sadly reduced by losses and disease. On July 5 cholera fell heavily upon the General, and smote him down with even more than its wonted suddenness. General Reed had seen General Barnard in

the early morning, and observed nothing peculiar about him; but by ten o'clock on that Sunday morning a whisper was running through the camp that the Commander of the Delhi Field Force was dying. 'Tell them,' said the dying General, speaking of his family in England almost with his last breath—'tell them that I die happy.' Next day his remains were conveyed on a gun-carriage to their last resting-place, and General Archdale Wilson assumed command of the force. It may be said that at this point of the long and weary siege the great turning-point was attained. The siege train which was to remedy our deplorable want of heavy ordnance was labouring down from Ferozepore, and on August 14 General Nicholson marched into camp at the head of his men. It was a sight to stir the spirits of the whole camp. Our people turned out joyously to welcome the arrival of the newcomers, and the gladsome strains of our military bands floated down to the rebel city with a menace in every note. The enemy had gained tidings of the approach of our siege train from Ferozepore, and they had determined to send out a strong force to intercept it. No more welcome task could have been assigned to Nicholson than that of cutting this force to pieces. In the early morning of August 25, amidst heavy rain, the force marched out of camp, and took the road to Nujufgurh, in which direction it was believed that the Bareilly and Neemuch Brigades of the rebel force had moved on the preceding day. It was a toilsome march too: the road, little better than a bullock track, was sometimes lost in swamps and floods. At many points our gun wheels sank in the mud up to their axles, and needed all the strength of the artillerymen to extricate them. The Infantry, slipping and sliding on the slimy soil, could scarcely make good their footing, and toiled on laboriously, wet to the skin and draggled with dirt; while the horses of the cavalry struck up the mud blindingly into the troopers' faces, and the camels sprawled hopelessly in the mire. The sun was sinking when our leading column espied the enemy, and at the same time came upon a

stream which the rain had flooded into the depth and dimensions of a river. The mutineers were posted along the line of Nicholson's advance to the left. Divided into three bodies they occupied two villages and a Serai in front of them, all protected by guns. As our troops passed the ford—the water even there breast high—the enemy opened upon the British column with a shower of shot and shell from the Serai; but, advancing under this fire, Nicholson took in the situation with his quick soldier's eye, and, when his force had crossed the water, at once made his dispositions. The foremost point of attack and the most perilous was the Serai. Against this Nicholson determined to fling the strength of his European troops, while he provided for the attack of the villages by other components of his force. Then having ordered the 61st and the Fusiliers to lie down, so as to be clear of the enemy's fire, he drew himself up in his stirrups and addressed his men. He told the 61st that they knew well what Sir Colin Campbell had said at Chillianwalah, and what he had again told the Highland Brigade after the Battle of the Alma. 'I have now,' he said, 'the same words to say to you, and to you my friends of the Fusiliers: hold your fire until you are within twenty or thirty yards of the enemy, then pour in your volleys, give them a bayonet charge, and the Serai is yours.' Then the artillery opened a smart fire on the Serai, and, sinking ankle deep in the swampy ground, steadily advanced, Nicholson at their head, in the face of a shower of grape and musketry; then holding back their fire, they carried the Serai, and captured the guns. But the resistance was desperate. The heroism which was displayed by our people was emulated by the enemy. The Sepoys fought well, and sold their lives dearly. There was a sanguinary hand-to-hand encounter. Many of the gunners were bayoneted or cut down in the battery, and those who escaped limbered up and made in hot haste for the bridge crossing the canal. But the attacking party pressed closely upon them, and the swampy state of the ground was fatal to the retreat, the leading guns stuck fast in the morass, and impeded

the advance of those in rear. Then our pursuing force fell upon them, and, before they had made good their retreat, captured thirteen guns and killed 800 of their fighting men. Night had by this time fallen upon the scene. Nicholson was master of the field, and the enemy were in panic flight. But our circumstances were not cheering; our baggage had not come up, and the troops were compelled, hungry, weary, and soaked as they were, to pass the night without food, or anything to console and sustain them except the thought of the victory they had gained. Next morning, having collected their spoil, and blown up the Nujufgurh bridge, they marched back to Delhi, carrying their trophies with them. The news of their victory caused great rejoicing in camp, and congratulations upon this brilliant achievement poured in from all sides. After this there was quiet for a little space in camp. All now were looking eagerly to the arrival of the siege train, and for the last reinforcements which Sir John Lawrence was sending from the Punjab. There was not a soldier in camp who did not then feel that the time of waiting and watching had wellnigh passed—that we should soon assume the offensive in earnest, with ample means to secure success. Delhi now seemed to be in our grasp, and the spirits of men rose with the thought of the coming triumph. Then was it that the mess tents of our officers rang with the loudest laughter, and our military bands sent up their gayest music; then it was that the inactivity of a disheartened enemy gave unaccustomed repose to the besieging force; then the healthy could enjoy their books and games, and the sick and wounded could be brought to the doors of their tents to inhale the pleasant evening air or to take in the marvellous beauty of the 'View from the Ridge.' For nearly three months the great city, with its wealth of ordnance, had defied the best courage and the best skill of the English nation. We had been beaten by the material resources of an enemy, without whose aids they could have been crushed in a day. But now, as our Engineers brought all the appliances of their craft to bear upon the strengthening and

securing of our positions, as the space between our siege works and the city walls was narrowed by their efforts, and breaching batteries were rising under their hands, no man doubted that the coming month would see Delhi prostrate at our feet, and the consummation of our hopes gloriously accomplished.

Again the supremacy of the English race in India, obscured only for a little while, was to be reasserted and re-established; and there was not a white man in camp who did not long for the day when the signal would be given, and it would be left for our English manhood to decide whether any multitude of natives of India behind their walls of masonry could deter our legions from a victorious entrance into the imperial city of the Mogul. At length, at the beginning of September, the long-looked-for addition to the siege train arrived. It consisted of six 24-pounders, six 8-inch howitzers, and four 10-inch mortars, with an ample supply of ammunition. This was followed on the 8th by the arrival of the Jummoo native contingent of 2200 men, with four guns, which raised the numbers in camp sufficiently to attempt the assault. On the night of September 6th, the first of the proposed siege batteries was established for six 9-pounders and two 24-pounders under Hindoo Rao's House, and to this was added, two days later, another to its left for five 18-pounders, four 24-pounders, and one 8-inch howitzer, called No. 1, intended to play on the Shah and the Cashmere Bastions. A heavy battery (No. 2) was placed in front of Ludlow Castle (the late residence of the Delhi Commissioner, who had been murdered when the city was seized). It consisted of nine 24-pounders, two 18-pounders, and seven 8-inch howitzers. The Cashmere Bastion was the object of its fire. The ground on which this battery stood, as well as that between it and the river, had only just been seized and occupied: to its left and close to the river two additional batteries were constructed, No. 3, for eight 18-pounders, and 12 coëhorns, and No. 4 for four 10-inch and six 8-inch mortars. Brind's battery, No. 1 to the right, commenced firing on the

morning of September 8, pounding the Moree Bastion, and dropping long shots into the Cashmere Gateway. Two days afterwards the Ludlow Castle batteries, No. 2, opened; the next morning, the Koodsia Bagh (No. 4) was unmasked, and with that of the Custom House (No. 3) took up the game. And now some fifty pieces of artillery were in full play on the doomed city. Day and night the pounding went on. The Moree Bastion was soon silenced, and the line of parapet which sheltered the skirmishers between it and the Cashmere Bastion was fast disappearing. The Cashmere Bastion itself was silenced in ten minutes after the Ludlow battery had opened on it, and the massive stonework, only a few months before restored and strengthened by the English Government, soon began to crumble away under the play of the 24-pounders. The Water Bastion faced the fire from the heavy guns at the Custom House at 160 yards range, which played with fearful effect. The guns were dismounted and smashed and the breach opened, while under the play of Tombs's [1] mortars the curtain between was literally stripped. Many casualties occurred in this advanced battery the afternoon before the assault. It was a work of considerable danger to get into the battery, and on looking up while running into the battery one saw the leaves falling from the trees from the storm of musket-balls from the walls of the city as though they were being blown by a storm. It now became imperative that the assault should be delivered as soon as possible. On the night of September 13 two Engineer officers, Lieutenants Medley and Laing, crept down into the ditch, examined the condition of the breaches, and though fired upon by the enemy, they succeeded in getting back unhurt, and reported the breaches practicable to the assault. The attacking force was divided into four columns with a reserve—the first to storm the breach at the Cashmere Gate, the second that in the Water Bastion, the third to enter by the Cashmere Gate when blown in by the Engineers, and the

[1] Major Tombs, B.A., afterwards Lieut.-General Sir Henry Tombs, K.C.B.

fourth on the extreme right to clear the Kissen Gunge suburb, and then enter by the Lahore Gate. The columns were thus composed:

No. 1, under General Nicholson, 1000 men; No. 2, under Brigadier-General Jones, 61st Regiment, 800 men; No. 3, under Colonel Campbell, 52nd Regiment, 1000 men; No. 4, under Sir Charles Reid, 780 men; Reserve under Brigadier-General Longfield, 1200 men.

These columns had fallen in by three o'clock on the morning of September 14, at the place of rendezvous, Ludlow Castle. During the night the enemy had filled up the breaches with sandbags. It became necessary to clear them away by fire from the batteries before any assault could be delivered; the guns opened accordingly and continued playing until daybreak. It had been arranged that the 60th Rifles, under Colonel Jones, should move forward first of all, and, under cover of the trees and brushwood, creep as close to the ramparts as possible, and from thence keep down the fire of the defenders while the columns advanced. The cheers of this party when they began to move were to be the signal for the guns to cease firing. The men of the first column, commanded by General Nicholson, had dashed at the breach in the Cashmere Bastion, which they carried with ease, in spite of a galling fire kept up on them from St. James's Church and the adjoining Kutcherry. At the same time the second column had stormed the breach in the left face of the Water Bastion. This was not effected without difficulty, as nearly all the scaling-ladders were broken before they could be fixed. Then the Kutcherry (or Magistrates' Court) and the church were cleared, and the two columns united under the command of General Nicholson for further action. Pushing forward they swept the enemy from the walls as far as the Kabul Gate, which they secured and opened. This success was rapidly followed up, and the column advanced to the vicinity of Lahore Gate, where they received a check. The Sepoys swarmed into the adjacent houses, and now began to pour a most destructive fire into the mass below, which was brought up by a breastwork, behind which were two heavy field-

pieces. Nicholson directed a charge to be made by the 1st Bengal Fusiliers, who advanced with a rush, and captured one of the guns. The terrible fire from the adjacent houses was meanwhile kept up, and the troops, crowded as they were in a narrow lane, suffered fearfully. Nicholson was anxious to secure the second gun, and, drawing his sword, headed a party to attempt its seizure. At this moment he was struck in the chest by a bullet, and fell mortally wounded. This loss was fatal to further progress at the time, and the column retired on the Kabul Gate. Meanwhile the third column, after having secured the Main Guard, and cleared the Water Bastion and Kutcherry, advanced through the Begum's gardens, towards the Jumna Musjid, a principal mosque, the gate of which they found bricked up, and the column was obliged to fall back on the Begum's gardens and join the reserve. The fourth column, after having failed in driving the enemy out of the suburb of Kissen Gunge, succeeded in entering the city through the Kabul Gate as soon as it had been secured by Nicholson's force. Thus ended the memorable 14th September—the British were within the walls, and held all the northern part of the city; but it was only after six days' more severe fighting that it was entirely clear of the mutineers. Early on the morning of September 21, the Fort and Palace fell into our hands. A royal salute at sunrise proclaimed that Delhi was once more ours, and that the Queen's sway had superseded that of the puppet Emperor.

Always hopeful, on May 30 Baird Smith wrote to a friend in England: 'As to the Empire, it will be all the stronger after this storm, and I have never had a moment's fear for it . . . and though we small fragments of a great machine may fall at our posts, there is that vitality in the English people that will bond stronger against misfortunes and build up fabric anew.'

In the last week of June, Baird Smith was ordered to Delhi to take up the duties of Chief Engineer. He improvised a body of 600 pioneers to follow him, and, being pressed to hasten his

arrival so as to take part in the assault, started on the 27th, and reached Delhi at 3 A.M. on July 3 to find that the assault had been, as usual, postponed. He had already an intimate knowledge of the city, and he at once examined the means of attack. He found both artillery and ammunition and also the Engineer party quite inadequate for a regular and successful siege, and urged ineffectually upon the General commanding, as had already been done by others, an immediate assault by storming and blowing in certain gates. Baird Smith considered that if the place had been assaulted at any time between July 4 and 14 it would have been carried. On the 5th Sir Henry William Barnard, dying of cholera, was succeeded in the command by Major-General Reed, who was at the time ill. Reed would not take the risk of an assault, and before he resigned on July 17 two severe actions had been fought and had so weakened the British that the chances of a successful assault had been much diminished, if not altogether destroyed. Baird Smith, however, sedulously attended to the defences of the Ridge, strengthening the position by every possible means.

Since the beginning of the month a retrograde movement had been discussed, and when Brigadier-General (afterwards Sir) Archdale Wilson assumed command on July 17 it required all Baird Smith's energy and enthusiasm to sweep away Wilson's doubts, and to persuade him, as he wrote to him, 'to hold on like grim death until the place is ours.' At the same time Baird Smith assured him that as soon as a siege-train of sufficient magnitude and weight to silence the guns on the walls of Delhi could be brought up, success would be certain. On August 12 Baird Smith, who was in bad health, was struck by the splinter of a shell in the ankle-joint, but he did not allow either the wound or his sickness to interfere with his duties as Chief Engineer.

The siege-train arrived on September 5, and in consultation with Captain (afterwards Sir) Alexander Taylor, his second in command, Baird Smith submitted a plan of attack which General Wilson, despite his divergence from Smith's views, had already

directed him to prepare. It was supported by Brigadier-General John Nicholson and Neville Chamberlain, the Adjutant-General, and the assault was decided upon. Wilson recorded that he yielded to the judgment of his Chief Engineer. Thus a heavy responsibility fell upon Baird Smith.

The first siege battery for ten guns was commenced on the night of September 7; others rapidly followed, until fifty-six guns opened fire. The attacking force completed its work triumphantly. After a heavy bombardment practicable breaches were made, and the assault took place on September 14.

A lodgment was made, but at heavy loss, and the progress inside Delhi was so slow and difficult that Wilson thought it might be necessary to withdraw to the Ridge, but Baird Smith asserted, 'We must retain the ground we have won.' He deprecated street fighting, and by his advice the open ground inside the Cashmere Gate was secured, the College, Magazine, and other strong forts gained, and progress gradually made, under cover, till the rear of the enemy's positions was reached, and the enemy compelled to evacuate them on the 20th, when headquarters were established in the palace.

Baird Smith had been ably seconded in all his exertions by Captain Alexander Taylor, and he expressed his obligations in no stinted terms. The picture, however, which is sometimes presented of Baird Smith disabled, and in the background, while his second in command did all the work, is incorrect. Wilson's despatch stated that in ill-health, and while suffering from the effects of a painful wound, Baird Smith devoted himself with the greatest ability and assiduity to the conduct of the difficult and important operations of the siege, and that his thanks and acknowledgments are particularly due to Baird Smith for having planned and successfully carried out, in the face of extreme and unusual difficulties, an attack almost without parallel in the annals of siege operations.[1] The rewards bestowed upon Baird Smith

[1] Malleson, *History of the Indian Mutiny*.

were in no way commensurable with his great services. He was promoted to be Brevet Lieutenant-Colonel (a rank he already held temporarily) on January 19, 1858, for service in the field; he was made a Companion of the Bath (Military Division) on the 22nd of the same month; he received the medal, and the thanks of the several commanders under whom he served, and of the Government of India.[1]

It was not until September 23 that Baird Smith gave up his command at Delhi, and went by slow marches to Roorkee, where he arrived on the 29th, suffering from scurvy, the effect of exposure and work, aggravated by the state of his wound. He was laid up for some weeks, and then went to Mussuri to recruit his health. On his recovery he was appointed to the military charge of the Saharanpur and Mozaffarnagar districts, which he held along with the appointment of Superintendent-General of Irrigation.

On September 1, 1858, Baird Smith was appointed Mint Master at Calcutta, in succession to Colonel John Thomas Smith.

On January 25, 1859, he became a member of the Senate of the University of Calcutta. On April 26 of the same year he was appointed Aide-de-Camp to the Queen, and promoted to be Colonel in the Army. From August 5 to October 1859 Baird Smith officiated as Secretary to the Government of India in the Public Works Department. The appointment of Mint Master afforded him leisure for other public services, which made his manifold powers of usefulness better known and appreciated. His crowning service was the survey of the great famine of 1861, the provision of relief, and the safeguards proposed to prevent such disaster in future. The labour and fatigue of long journeys, investigations, and reports, followed by the depressing wet season, renewed the illness from which he suffered after the capture of Delhi. He was carried on board the 'Candia' at Calcutta, and died on December 13, 1861. His body was landed at Madras and buried there with military honours. A memorial of him was

[1] *London Gazette*, November 14 and 24 and December 15, 1857, and January 16, 1858.

placed in Calcutta Cathedral, the epitaph being written by Colonel Sir Henry Yule. A memorial was also erected at Lasswade, Midlothian.

Baird Smith married, on January 10, 1856, in the cathedral at Calcutta, Florence Elizabeth, second daughter of Thomas De Quincey, author and poet. His widow and two daughters, Florence May and Margaret Eleanor, survived him. Of his two brothers, John Young (*d.* 1887) was a Deputy Surgeon-General in the Bombay Army, and Andrew Simpson, a Colonel in the Indian Army, saw a good deal of active service in Upper India.

Besides the work mentioned, Baird Smith published: 'Agricultural Resources of the Punjab; being a Memorandum on the Application of the Waste Waters of the Punjab to purposes of Irrigation,' London, 8vo, 1849. He contributed 'Report of some Experiments in Tamping Mines' to the 'Papers on various Professional Subjects connected with the Duties of the Corps of Engineers, Madras Presidency,' edited by Colonel John Thomas Smith, vol. i. 1839, and 'Some Remarks on the Use of the Science of Geology' to 'The Professional Papers of the Corps of Royal Engineers,' Corps Papers Series, 1849. Baird Smith left unpublished notes for a History of the Siege of Delhi, which are embodied in 'Richard Baird Smith, a Biographical Sketch,' by Colonel H. M. Vibart, London, 1897, 8vo.

[*India Office Records*; *Despatches, London Gazette*; private sources; Memoir in Vibart's *Addiscombe, its Heroes and Men of Note*; Kaye's *History of the Sepoy War in India*; Malleson's *History of the Indian Mutiny*; Medley's *Year's Campaigning in India*; An Officer's *Narrative of the Siege of Delhi*; Colonel Samuel Dewé White's *Complete History of the Indian Mutiny*; Bosworth Smith's *Life of Lord Lawrence*; Norman's *Narrative of the Campaign in* 1857 *against the Mutineers of Delhi*; article by Sir Henry Norman in the *Fortnightly Magazine*, April 1883; Letter from Baird Smith to Colonel Lefroy, R.A., published by the latter in the *Times*, May 11, 1858; Lord Roberts's *Forty-one Years in India*; Holmes's *History of the Mutiny* Thackeray's *Two Indian Campaigns*; Thackwell's *Second Sikh War*; Memoir by Colonel R. H. Vetch, R.E., in the *Dictionary of National Biography*.]

LIEUTENANT DUNCAN CHARLES HOME, V.C.

DUNCAN CHARLES HOME was the eldest surviving son of the late Major-General Richard Home, of the Bengal Army, and was born at Jubbulpore in 1828. He was educated at Elizabeth College, Guernsey, and at Staton's School, Wimbledon, from the latter of which he proceeded to the H.E.I. Company's Military Seminary at Addiscombe in February 1845. His youth was distinguished by steady good conduct and proficiency, and when he obtained his commission at Addiscombe in December 1846, he passed out at the head of his term. After completing his military course of training at Chatham, he sailed for Bengal in July 1848, and proceeded immediately on his arrival to join the army under Major-General Whish, before Mooltan, after the fall of which place he was present at the Battle of Gujerat in February 1849. For these services he received a medal with two clasps. Later on in the same year he was posted to the Ganges Canal, and was employed on the construction of that great work in the neighbourhood of Allygurh until 1852. He was then, on the recommendation of Sir Proby Cautley, nominated to the charge of the first division of the Bari Doab Canal in the Punjab, with headquarters at Madhopore, and continued to discharge his duties there with great diligence and credit until he left to join the forces before Delhi in August 1857. In June of that year he received orders to raise three companies of Pioneers for service at Delhi from among the Muzbee Sikhs who were employed on the works under him. The order was received one morning and the three companies marched away complete the following evening, but greatly to his disappointment he was not allowed to accompany them, the command having been previously promised to another officer of the corps. About a month later, however, he received an order to raise two more companies of Muzbee Pioneers, and to proceed with them to

Delhi, where by forced marches of twenty miles a day he arrived about August 20. On the arrival of the siege train he was charged with the construction of the first breaching battery on the right of the attack, which was completed in one night, and afterwards had charge of the construction of the battery nearest the city, only 140 yards from it, which reached the Water Bastion. He remained in charge of this battery until the assault on September 14, when he was directed to take command of a party consisting of Lieutenant Salkeld, Bengal Engineers, three European non-commissioned officers of the Sappers and Miners, one bugler of H.M.'s 52nd Regiment, and fourteen Native Sappers, and to proceed to blow in the Cashmere Gate of the city. A full account of the gallant and successful manner in which this perilous duty was executed in broad daylight will be found in his Report to Lieutenant-Colonel R. Baird Smith, Chief Engineer, and in paragraph 13 of the latter officer's Report to Major-General Wilson, dated September 17, 1857, copies of which are given in the Appendix; and, as a fitting reward for their courageous conduct, the names of Lieutenants Home and Salkeld and of Sergeant Smith and Bugler Hawthorne were recommended by General Wilson for the Victoria Cross. After gaining entrance to the city through the Cashmere Gate, Lieutenant Home, who had escaped being wounded, joined the third column, and subsequently was directed to blow in the gate of the palace, a duty that must have afforded him peculiar satisfaction, as it was there that his uncle, Simon Fraser, Commissioner of Delhi, one of the first victims of the Mutiny, met his death. His party was not fired upon, as there were only a few men left to guard the gate, and they were asleep. The gate was blown in about noon. When the rebels had evacuated the city, he was attached as Field Engineer to the movable column under General Greathed, and, after a sharp action with the mutineers at Bulundshahur, was left with Lieutenant A. M. Lang, Bengal Engineers, and two companies of Sappers, to destroy the defences of the Fort of Malagurh, and it was in the performance

of this very ordinary duty, from which no danger was to be apprehended, that the accident occurred which cut short his promising career. The sad event cannot be more clearly and feelingly described than by quoting the words of his brother officer, Lieutenant Lang, in writing to Lieutenant Robert Home, Bengal Engineers, on October 1, 1857, the day it occurred :—

'For the last three days we have lived in the Fort, blowing up and destroying its defences; your brother was so very happy about it, enjoying so much each explosion, and considering it great amusement. Five mines yesterday and to-day he had with his own hands exploded, and one important one alone remained to blow in the counterscarp and thus connect the exterior and interior of the Fort. He laughed as he called to us all to clear away, and cried to the sergeant, "Now we will blow this one up and march off all jolly to camp."

'The only two other officers here, Stevenson of the 23rd and I, ran up to the ruins of a bastion near, and I saw him run up to the slow-match with his port-fire in his hand. Heaven only knows how, but instantaneously the mine sprung, to our horror! We rushed down and called all the men to dig, but after a moment I looked round to see if I could see him anywhere near, and in a hollow some fifteen yards off I found your poor brother's body. He must have been killed instantly; life was extinct, and under the dreadful circumstances luckily so, for his legs were both broken, one in two places, and his arm was nearly torn off. He was a favourite with all in camp, brave and active, so very good-natured and always laughing. I am sure every one will mourn his loss, as I do, most deeply. Poor fellow! fancy his escaping untouched from the blowing in of the Cashmere Gate, where he and Salkeld earned the Victoria Cross, to meet his end in exploding mines before a deserted fort. It is not now half an hour since the accident occurred.'

LIEUTENANT PHILIP SALKELD, V.C.

OBTAINED his first commission in June 1848, and was posted to the Bengal Presidency.

At the time of the outbreak of the Indian Mutiny he was an Executive Engineer in the Public Works Department and was stationed at Delhi. He was one of a party consisting of twelve officers and ladies who escaped from Delhi after the arrival of the mutineers from Meerut and the massacre of Europeans on May 12, 1857. The party crossed the Jumna River and made their way to Meerut. They walked the whole distance exposed to the attacks and insults of the villagers and to the intense heat of the sun's rays. Some of the party were wounded, and they were without shoes. They were pelted with stones at many of the villages through which they passed, and arrived at Meerut in an exhausted and destitute condition. The cheerfulness and equanimity of Lieutenant Salkeld under these trials tended much to keep up the spirits of the party.

Salkeld accompanied the column which marched out of Meerut on May 27, and was one of fourteen officers present at the Battle of the Hindun. After the actions on the Hindun the force under Brigadier-General Archdale Wilson remained in its position from June 1 to June 5, and marched on the evening of June 5 to join the force under the Commander-in-Chief. It reached Paniput on the 7th. The siege train arrived from Phillour on the 6th, and the whole force, now under the command of General Barnard, who had succeeded to the command after the death of General the Hon. A. Anson. Salkeld was present at the Battle of Badli-ka-Serai. After the battle the troops were posted at intervals along the Ridge which overlooks the city. The camp was pitched in rear of the Ridge, and a bungalow that had partially escaped the conflagration after the Delhi massacres was told off for the head-

quarters of the Engineers. Salkeld served throughout the whole of the Siege of Delhi from June 8 to September 14.

It was determined by the Chief Engineer in communication with the Brigadier commanding the Artillery to commence, on the night of June 8 and 9, two batteries in the neighbourhood of Hindoo Rao's House for two guns each. They were designated Salkeld's and Wilson's batteries. The armament of each was an 18-pounder and an 8-inch howitzer, and they were intended to subdue the fire of the enemy's guns in the Moree and Cashmere Bastion. An additional gun was subsequently added to Salkeld's battery, and on June 11 the whole of the guns aided by the mortars opened fire.

On the night of June 15 and 16 a trench of communication was made between Salkeld's and Wilson's batteries, revetted inside with stones; the soil being very rocky the work was one of great difficulty, and proceeded slowly. The enemy was very quiet all night and day, and no attack was made on the position. On June 22 a party of Sappers under Lieutenant Salkeld destroyed the bridge carrying the Grand Trunk Road across the Nujufgurh Jheel drain. The bridge was of native construction, and of very massive proportions, having two arches and a central pier. A charge of 325 lbs. of powder, lodged in three chambers in the pier, effected complete demolition, destroying both arches.

On the afternoon of August 26 the rebels attacked our right, bringing up six guns. Apparently they supposed that the main body of our troops had gone out with Nicholson's columns. About fifty sowars rashly charged up to within fifty yards of Salkeld's battery, where many paid the penalty of their rashness with their lives. Our casualties were twelve in this affair. General Nicholson's column returned at dusk. During the whole period of the siege, Salkeld was always cheerful and in good spirits, and had always a kind and encouraging word for those under him. He was a man of very simple and unpretending tastes, and had a dislike to show or display of any kind.

On the morning of September 14, 1857, he was told off with Lieutenant Duncan Home to the arduous duty of blowing in the Cashmere Gate of the city. How he effected this dangerous and desperate duty in which he sacrificed his life is told in the previous notice, under the head of Lieutenant Duncan Home, and the Appendix which will be found at the end of this volume.

After the wounds that he received on September 14, he lingered in much suffering until October 11, when he passed quietly away. He was beloved and admired by all who had the good fortune to know him.

FOURTH PERIOD: 1860-1870

Amalgamation of the Indian Corps with the Royal Engineers in 1862—The Mahsud Wuziri Expedition, 1861-62—Umbeyla Campaign, 1863—Bhootan War, 1864-65—Abyssinian Expedition,1868-69—Hazara Expedition, 1868.

Biographical notices of Major-General Sir Henry Durand, K.C.S.I., C.B.; Major-General Sir Andrew Scott Waugh; General Sir William Baker, K.C.B.; Major-General E. T. Lake, C.S.I.; Lieutenant-Colonel Patrick Stewart, C.B., and Lieutenant-Colonel Joseph Dyas.

In 1860 a small expedition was sent to Mahsud Wuziri to punish the refractory tribes. Captain J. P. Basevi (see biographical notice of) and Lieutenant James Browne (afterwards Sir James Browne) were engaged in this expedition.

In 1861 the Chinese War took place, the expeditionary force being under the command of General Sir Hope Grant. The Second Division was under the command of Major-General Sir Robert Napier, K.C.B., and a short account of the campaign will be found under the biographical notice of Lord Napier. Major W. W. Greathed also served in this campaign, and at the close of it was promoted to a brevet Lieutenant-Colonelcy, and subsequently was made a C.B.

The year 1862 was an eventful one in the annals of this corps, as in that year the officers of the three Indian corps were amalgamated with the Royal Engineers, although their names continued to be borne on three separate lists for promotion.

In the year 1863 a force under Brigadier Chamberlain advanced into the hills on the north-west frontier near Umbeyla. The short campaign which then ensued was chiefly remarkable for the desperate character of the fighting: the native swordsmen

having attacked our pickets and fought hand to hand with them in the most determined manner.

Colonel A. Taylor (afterwards Sir Alexander) was Commanding Engineer, and Lieutenants Browne (afterwards Sir James) and T. Carter (afterwards Colonel Carter-Campbell) also took part in the campaign.

In the Bhootan War of 1864–65 twelve officers of the corps were employed, viz. Captains W. S. Trevor, V.C., Raoul de Bourbel, F. S. Stanton, Æ. Perkins; and Lieutenants C. N. Judge, G. S. Hills, G. Strahan, W. T. Heaviside, A. C. Cunningham, J. Dundas, V.C., C. Strahan, F. F. Cotton, J. A. Armstrong.

At the close of the war Captains W. S. Trevor and Æ. Perkins were promoted to brevet majorities. The Victoria Cross was awarded to Major Trevor and Lieutenant Dundas for gallant conduct in storming a blockhouse at Dewargiri on April 30, 1865. This exploit is referred to in the biographical notice of Captain Dundas.

In 1868 an expedition was sent to Hazara, which speedily succeeded in punishing the tribes near the Black Mountains.

Captain W. B. Holmes (afterwards Lieutenant-Colonel), who afterwards received promotion for his services in Afghanistan, and who died at Cawnpore in 1882, and Lieutenants H. C. Rowcroft and W. Broadfoot, nephew of Major George Broadfoot, C.B., and of Lieutenant James Sutherland Broadfoot, were engaged in this expedition.

The Abyssinian Expedition of 1867–68 was essentially an Engineer campaign, and well was it for its success that it was commanded by a man who was not only a consummate leader, but at the same time a highly trained scientific soldier. The officers of Bengal Engineers engaged in this campaign were Lieutenant-General Sir Robert Napier, K.C.B., in command of the expedition; Lieutenant O. St. John (afterwards Sir Oliver), and Lieutenant T. Carter (afterwards Colonel Carter-Campbell).[1] The troops forming

[1] Colonel Carter-Campbell died at Fascadaile, Argyllshire, in January 1900.

the expeditionary force arrived by degrees, the advanced Brigade landing in November 1867, and the Headquarters early in January 1868. The Engineer Staff consisted of Lieutenant-Colonel St. Clair Wilkins, Royal Bombay Engineers, who was commanding, and Captain C. Goodfellow, V.C., as his Brigade-Major. There was one company of Royal Engineers, the 10th, under the command of Major Pritchard, R.E. Of Indian Sappers there were three companies, viz. G, H, and K, and four Bombay companies, viz. the 1st, 2nd, 3rd, and 4th. The Madras Sappers were under the command of Major H. N. D. Prendergast (afterwards General Sir Harry Prendergast), and the Bombay Sappers under Captain Macdonell. Altogether thirty officers of Royal Engineers were engaged in this expedition, a full account of which is given in Major-General Porter's 'History of the Corps of Royal Engineers,' vol. ii.

MAJOR-GENERAL SIR HENRY DURAND, K.C.S.I., C.B.

Was born on November 6, 1812, and educated at Leicester and Putney. He entered Addiscombe in 1826, and obtained his commission in the Bengal Engineers in 1828. On the completion of his studies at the Royal Engineers' establishment at Chatham, Sir Charles Pasley wrote a special letter of recommendation about him, in which he said that 'Durand was one of the most distinguished young Engineers whom I ever had under me, both in respect to diligence, ability, and conduct.'

In due course he proceeded to India, where he was stationed in the North-West Provinces, on the Jumna Canal, with Napier and Baker. This was a happy selection so far as his subsequent career was concerned, as it gave him an excellent opportunity while carrying out his irrigation duties for studying the agrarian tenures, the productive capacities, and the economical conditions of those provinces—an opportunity of which he availed himself to the utmost. It was not long before he showed such marked signs

MAJOR-GENERAL SIR H. M. DURAND, R.E., C.B., K.C.S.I.

of ability and political insight, that he was selected for the post of Secretary to the Agra Board of Revenue, which had never before been filled by a military officer. He continued to discharge the functions of this office until the outbreak of the first Afghan War, when he threw it up for the purpose of seeing active service. Previous to this, in 1834, he had applied to be sent to Persia to assist in organising and drilling the Native Army, but the application was unsuccessful. At this time the Engineers engaged on the Jumna Canal were in the habit of making excursions into the Siwalik Hills, and on one of these excursions they discovered the Siwalik fossils which startled the scientific world and contributed so materially to the development of the study of palæontology. In 1838 he examined and reported upon the Nujufgurh marsh and a large tract of country south of Delhi which it was proposed to drain.

In 1837 British interest was again excited by the news that the Persians, instigated by Russia, had despatched an army to besiege Herat, and Lord Auckland sent a mission to Dost Mohammed under the conduct of Alexander Burnes.

That officer, already known as a traveller in Central Asia, had many qualities which justified his selection, but he was so hampered by restrictions as to be able to make no substantial promises of aid to the Ameer, while he was instructed to demand much from him. The Ameer very naturally turned from him to Vicovitch, the Russian agent. Burnes's mission was withdrawn, and the Government of India took immediate steps to dethrone Dost Mohammed and place Shah Shujah on the Kabul throne.

What is known as the Tripartite Treaty was negotiated between the Government of India, Runjit Singh, and Shah Shujah, whereby the first and second parties contracted to assist the third to re-establish himself on his throne.

A large force was assembled at Kurnál, and on October 1, 1838, Lord Auckland issued his manifesto, of which Durand said[1] 'the words "justice" and "necessity" . . . were applied in a

[1] *First Afghan War*, p. 81.

manner for which there is fortunately no precedent in the English language;' and of which Sir H. Edwardes remarked[1] that 'the views and conduct of Dost Mohammed Khan were misrepresented with a hardihood which a Russian statesman might have envied.'

Sir Henry Rawlinson, who made the subject of Herat the special study of a lifetime, and who is justly regarded as our best informed authority on England and Russia in the East, expressed a decided opinion. 'Herat, which has justly been named "the Key of India," must, in my view, be secured against Russian occupation at all hazards;' and again: 'Herat possesses natural advantages of quite exceptional importance. . . . Russia in possession of Herat would have a grip on the throat of India. She would indeed, in virtue of the position, command the military resources both of Persia and Afghanistan, and would thus oblige us at once to increase our frontier army by at least 20,000 fresh British troops. . . . That city is both strategically and politically an indispensable bulwark of India, and we cannot and will not allow its future fate to be at the disposition of a foreign power.'

Sir Henry Durand held other views. He considered that the exaggerated fears of Russian power and intrigue invested Herat with a fictitious importance wholly incommensurate with the strength of the place and its position as regards Kandahar and the Indus. 'To speak of the place as of vital importance to British India was an hyperbole, so insulting to common sense as scarcely to need refutation, and which ignorance of the countries west of the Indus and inexperience of military operations in the East could alone palliate.' It is to be noted that this opinion was expressed with reference to affairs in 1838.

While serving as an Engineer through the first Afghan campaign it fell to his lot to undertake the duty of blowing in the gates of Ghuzni, an operation rendered necessary by the absence of any siege train. In reference to this brilliant episode it may be remarked that in the obituary article which appeared in the

[1] *Life of Sir H. Laurence*, vol. i. p. 233.

'Times' newspaper on the occasion of Sir Henry Durand's tragic death, more importance was laid on his share in the work than it appears he really deserved. This called forth a remonstrance from Lord Keane, who wrote: 'The credit of the brilliant idea of blowing in the gate was entirely due to Captain Thomson, the Chief Engineer. Lieutenant Durand performed his part of firing the train with great coolness and self-possession, being fully exposed to the enemy's fire from the ramparts while he applied the match to the fuse, which he had some difficulty in lighting. Lieutenant James Broadfoot, in his notes on the siege, writes thus: 'Whilst to Captain Thomson is due the credit for planning the demolition of the gate of Ghuzni and the immediate assault of the fortress, to Lieutenant H. M. Durand must be assigned that of successfully carrying out the instructions. He exhibited there the greatest coolness and gallantry in the most dangerous situation. After the powder was laid and all ready, the port fire did not light as it should have done, and he had to blow the slow match and port fire until at last it ignited. He then watched it burning for some time before returning to cover.' The other Engineers engaged with him in this arduous duty were Captain Peat, Bombay Engineers, and Lieutenant Macleod, Bengal Engineers (afterwards Lieutenant-General).

After the arrival of the British force at Kabul, Durand was appointed Engineer to Shah Shujah, and in this capacity did his best to oppose the fatal error of abandoning the Bala Hissar. The Envoy, as all know, was killed by Akbar Khan at an interview, and before long the Kabul force capitulated. That army paid dearly for its error; with the exception of the prisoners and hostages in Akbar Khan's hands, and of Dr. Brydon, who escaped, they were utterly destroyed in the passes through which Sale's Brigade had forced its way. The Envoy had summoned Nott and Sale to his assistance. The former was prevented by the season of the year and other considerations from compliance. When Sale received the order he consulted his officers and decided

that he could not obey. This decision has been much questioned. Durand has stated that 'it was regretted by some of the ablest officers in his force, foremost among whom was Broadfoot.'[1] Durand soon resigned his appointment as Engineer to Shah Shujah, and returned to India with Sir John Keane. Sir Herbert Edwardes on the same subject has said :—

'Of course it will always remain a moot point whether Sale could have returned or not, and, if he had returned, whether it would have saved the Kabul force. From Sale's own account it is probable he could not have returned in a state of efficiency ; but there were at least two men with Sale's Brigade—one, Henry Havelock, who would have recalled the discipline and spirit of Elphinstone's subordinates, the other George Broadfoot.'

The following letter from Major Havelock to Captain Durand regarding the councils of war at Jellalabad is of interest :—

'Kussowlee : May 1, 1843.

'My dear Durand,—I have read over Broadfoot's memoir regarding the councils of war in Jellalabad, and compared it with such memoranda as I possess. I consider it a faithful account of that which occurred.

'As was to be expected, some minor incidents have adhered to his memory which have escaped mine, such as Colonel Monteath's quoting poetry and the like ; and of course if I were to tell the story I should introduce like personal anecdotes, which he has forgotten, such as the astounding vehemence with which Oldfield exclaimed, "I for one will fight here to the last drop of my blood, but I plainly declare that I will never be a hostage, and I am surprised any one should propose such a thing, or think that an Afghan's word is to be taken for anything." But the account of the debates as given by Broadfoot is so correct that I have thought it unnecessary to attach any remarks to his sketch. Oldfield and

[1] *First Afghan War*, p. 360.

Broadfoot were the only two who voted at the first council absolutely against treating to quit the country . . .'

After the termination of the Afghan campaign Durand proceeded on furlough to England. While there he was thrown into contact with Lord Ellenborough, who was about to proceed to India as Governor-General, and was offered the post of Aide-de-Camp by the new Governor-General. This he accepted and accompanied his chief to India. He was soon made Private Secretary, a post which he held for two years from 1842 to 1844. It was when holding this appointment that he wrote the following letter to Major George Broadfoot, referring to the Battle of Maharajpore:—

'Camp Gwalior: January 11, 1844.

'My dear Broadfoot,—Your letter of the 18th ult. and enclosure I lost no time on receipt in communicating to the Governor-General. You will have heard of the actions of the 29th at Maharajpore and Punniar; on the 29th both took place. That at Maharajpore was a combat of guns against infantry. The latter did their duty bravely, but our loss was severe. I enclose the Gazette and Despatch on these actions, in case you should not before have received them. Sanders[1] fell in leading a party of the 40th against the guns.

'Yours sincerely,

'H. M. DURAND.'

In September 1844 Durand was appointed Commissioner of Tenasserim and arrived at Moulmein in that month to succeed Major Broadfoot, appointed Agent for the North-West Frontier. In this position he raised a storm of official anger by his stern repression of corruption, and the energy with which he attacked the lax administration of the province.

He was a man of blunt speech and strong will. His deter-

[1] Major Sanders, C.B., Bengal Engineers.

mined antagonism to all official neglect led him to speak and to act with extreme vigour, and thereby he raised powerful enemies. He was recalled to Calcutta, and whilst there the first Sikh War broke out. Durand hastened to join his corps for duty in this new field of action, and was present at the Battles of Chillianwalah and Gujerat, for which he received a Brevet Majority. Throughout the latter decisive battle he was with Sir Colin Campbell's Division.

In an article in the 'Calcutta Review,' vol. xv. p. 276, written shortly after the Battle of Chillianwalah, Durand gives a striking criticism on the attack. 'Our attack,' he writes, 'fair upon the centre of the enemy, gave the latter the full advantage of his very extended position; and as his centre was covered by thickish bushy jungle, which dislocated all formations in line, and inevitably produced confusion in the brigades, besides offering difficulties to the movement of the guns, and to bringing them into action, the troops were sure to come into action with the Sikh Infantry and guns in the most unfavourable position, their organisation disturbed, and nothing but their own courage and the example of their officers to compensate for every conceivable disadvantage. Verily, British infantry, British officers, and British bayonets are of such a character, so entirely to be relied upon, that it is no wonder that British generals will dare and risk much. The dauntless valour of the Infantry rectifies the errors of its commanders, and carries them through what would otherwise be inevitable defeat and disgrace. But it redeems their errors with its blood; and seldom has there been more devotion, but, alas! more carnage, than on the hard-fought field of Chillianwalah, a field fairly won, though bravely contested by the Sikhs of all arms.'

Of the Battle of Gujerat he also wrote an article in the 'Calcutta Review' (vol. xv. pp. 290, 291), which is a masterpiece of sound and fair argument, and from which the following is an extract: 'Gough had overthrown the Sikh army, and had crowded

it in heavy masses upon a line of retreat which offered no hope of support, provision, or escape for the disheartened soldiery, if properly followed up.'

Followed up it was. Cavalry and Horse Artillery were launched in pursuit of the enemy. During the remaining hours of the day the beaten army was subject to all the horrors and all the inconveniences of constant and repeated assaults. It gave way under the pressure. Many Sikhs quitted the ranks and rid themselves of their uniforms. For miles the country was strewn with guns, bullocks, wagons, tents, and standards abandoned in hot haste. Darkness at length put a stop to the pursuit. The next morning two British columns were launched in pursuit of the enemy. One, the smaller, under Colin Campbell, proceeded to the Bimbar Pass to secure any guns which might have taken that route; the other, the more important, led by Gilbert, proceeded by dinghi to the Jhelum, and, crossing that river, followed up the enemy with so much vigour, that on March 14 the entire Sikh army unconditionally surrendered.

At the close of the war Durand was appointed Political Agent at the Court of Scindia at Gwalior, where he guided the delicate complications of Mahratta politics with consummate skill. From Gwalior he was transferred in 1849 to Bhopal, and from thence he was promoted to Nagpore. He was present with Lord Ellenborough at the Battle of Maharajpore, when the latter was under fire, and in the thick of the action. Although the period of his career at Bhopal was one of disappointment, it bore good fruit. Throughout the mutinies there was no stauncher friend to the British cause than the Begum of Bhopal, and this was due to the confidence and goodwill which Durand inspired. During his residence at these native courts, Durand had great opportunities for studying the several conditions of the people of India under the rule of their own sovereigns, and he ventilated his views in a series of essays which were published in the 'Calcutta Review.' In 1855 he returned to Europe, but sailed again for India

at the close of the year. No political appointment being offered to him, he was employed as Superintending Engineer of the Presidency Circle. At this time his opinion was frequently asked by the Governor-General, Lord Canning, and on two occasions he was mainly instrumental in dissuading Lord Canning from projecting military operations, one being the occupation of Quetta and the other the attacking of Persia overland through Afghanistan.

In March 1857 Colonel Durand was informed that he had been selected to succeed Sir Robert Hamilton in charge of the Central India Agency. This was one of the most important political charges in India and greatly coveted, and much interest had been made in behalf of others; but Lord Canning set all recommendations aside and nominated Durand to the post. Before the end of March he had started for the headquarters of the Agency at Indore.

This was the turning-point in his career. He had afterwards to contend with many difficulties and to suffer much misrepresentation, and his upward progress was slow. But from this time he steadily forced his way, and the very opposition he met with served to make his name and character better known in India. The Agency in Central India was in fact, what it is still, one of the three great prizes of the Indian 'political' service.[1] Our Resident at Indore had under his charge the eastern and by far the more troublesome and difficult half of the great belt of native territory which stretches across India from Scinde to the frontiers of Lower Bengal. Twelve considerable states, and a multitude of minor chiefships, were included within the limits of this Agency, which boasted a total area of about 86,000 square miles, and a population of nearly eight millions.

Among the larger states were the Mahratta principalities of Scindia and Holkar, our ancient enemies, the first of whom had opposed us in open battle only thirteen years before. In time of

[1] Central India, Rajputana, Hyderabad.

trouble the post was therefore likely to be one of special importance.

The history of Sir Henry Durand's tenure of the appointment is in fact the history of the Mutiny in Central India. Before he left Calcutta there had been signs of widespread discontent in the ranks of our Native soldiery, and he was not blind to their significance. Fifteen years earlier, when Lord Ellenborough was coming out to India, he had warned him of the danger to be apprehended from this source, and the warning was taken to heart. During Lord Ellenborough's administration he had watched the temper of the Native troops with anxious care, and the partial mutinies which occurred strengthened him in his conviction that we were walking on the crust of a volcano. The great extension of territory, unaccompanied by any increase of European force, which took place during Lord Dalhousie's rule, seemed to him a further weakening of our position; and in 1857 he was fully alive to the imminence of the danger. Before leaving Calcutta he spoke warningly to Lord Canning regarding the state of the Bengal troops. He had hopes that 'the wave of disaffection might die away as it undulated through the army,' but he greatly doubted this, and when he could properly speak without reserve he spoke plainly. It may be supposed, therefore, that on Colonel Durand's arrival in Central India he lost no time in ascertaining precisely the position of his charge from a military point of view, and in calculating the means at his disposal in case of disorder breaking out.

The earliest warning of trouble came from the most distant point of the Agency. On April 25 Colonel Durand received information that a Sepoy of the Bengal Native Infantry had been apprehended in the native state of Rewah, charged with the delivery of a treasonable message to the Durbar.

It was at first supposed that the man belonged to the disbanded 10th, but he was found, on inquiry, to belong to the 37th Native Infantry, then stationed at Benares, and there was reason to

believe that he was one of several emissaries sent out by that regiment to try the temper of the Native courts. From this time evil tidings poured in fast. A private letter brought the news of the mutinous behaviour of the 3rd Cavalry at Meerut. Then came a report that a regiment of Oude Infantry had misconducted itself at Lucknow, and this was a warning of peculiar significance for Central India, for it showed that the prevailing disaffection was not confined to the regular army. The Oude troops, like most of the troops in Central India, were a class apart from the regulars. They were, however, more allied to the regiments of the line than were the contingents of Central India. There all still seemed secure, and Colonel Durand wrote to Lord Canning: 'I have no reason to suppose that any of the contingents of Central India have, as yet, shown any disposition to sympathise with the disaffected movement. Rumours of an uncomfortable feeling existed among the Mhow Native troops, I have heard, but nothing definite and nothing to which I attach any importance.'

This was on May 11. Three days later the calm was over. A series of startling telegrams had come in from the Lieutenant-Governor at Agra; the Native troops had broken into open revolt, many Europeans had been massacred, and Delhi was in the hands of the insurgents.

The storm which had been so long gathering had burst at last. Every Englishman knows what followed. To understand the part which Central India was called upon to play in the great conflict, it will be necessary to examine in some detail the geographical conditions of the territories under Colonel Durand's charge and the circumstances which surrounded him.

The Central India Agency may be roughly described as a great triangle, of which the base, more than 500 miles in length, was formed by a line drawn across the continent of India from east to west. Starting about fifty miles east of Baroda, this line followed the course of the Nerbudda river as far as Jubbulpore, and was thence prolonged to the eastern extremity of the Rewah

State, about 100 miles south of Benares. From the terminal points of the line, the sides of the triangle, each over 300 miles in length, sloped upwards to the northern extremity of Scindia's dominions, a point on the Chumbul river about thirty miles south of Agra. Of course this figure was a very irregular one, but the description will serve to convey a general idea of the territories over which Colonel Durand had to exercise a more or less direct control.

The importance of this great tract of country did not lie mainly in its size. From the southern frontier of Holkar's possessions below the Nerbudda to the apex of the triangle on the Chumbul, the direct road between Bombay and Agra lay through the territories of the Central Indian States. Both as a postal and telegraphic line, this road was invaluable, for there was no direct telegraphic line between Madras and Calcutta, and the only circle by which telegraphic communication between Bengal and the Madras and Bombay Presidencies could be effected was that by Agra and Indore.

It was not less important as a purely military road, for along it troops from Madras and Bombay could be brought directly into operation against the north of India. The maintenance of this line of communication, the very backbone of his charge, was therefore the main object which Durand had in view. Unfortunately the road was flanked to the westward, though at a considerable distance, by the two military stations of Neemuch and Nusseerabad, both of which were occupied by regular troops not under his orders. To the eastward the position was still more insecure. The great triangular tract which has been mentioned was not all under the direct control of the Agency. It was fairly cloven asunder by the 'Saugor and Nerbudda territories,' a wedge of country under British rule, which pushed up through the base of the triangle, throwing off Bundelcund and Baghelcund to the eastward and narrowing to a point at Jhansi, in the very heart of the Agency, where it was met by a southerly projection from the

British districts south of the Jumna river. This tract of country and its borders were studded with military stations occupied by regular troops. Jubbulpore, Saugor, Lullatpore, Nowgong, and Jhansi flanked the Bombay road at various distances, closing gradually upon it to the northward. The last-named and most northerly station was, perhaps, sixty miles out of the road.

As this chain of posts completely separated the Agent from the eastern portion of his charge, the only force he could depend upon for the protection of the great line of communications was that at his disposal between the western frontier of the Saugor commissionership and the eastern frontier of Rajputana.

Another most important, though at first a secondary, object was the maintenance of the line of the Nerbudda.

The Armies of Bengal, Madras, and Bombay were distinct bodies, having many points of difference; and the general defection of the troops in Bengal, if it occurred, did not of necessity involve the defection of the southern armies. Speaking roughly, the Nerbudda was the boundary between north and south. The military stations to the north of the river were held by troops from Bengal, those to the south by troops from Madras and Bombay. If Central India remained under control, a strong barrier would be maintained right across the continent, for to east and west of Colonel Durand's charge lay vast tracts of difficult country, through which little communication between north and south was likely to be possible.

Finally, it was a matter of importance, putting aside all ulterior considerations, to preserve from anarchy the Native States themselves, and to prevent their armed strength from swelling the tide against us.

The value of the force at Durand's disposal did not consist of its European element. With the exception of one battery of Foot Artillery, which contained a source of weakness in its Native drivers, there was not a single European soldier under his orders. The only strong point about his position was the fact that the

bulk of the force was composed not of regular troops, but of Native State contingents. It had been the policy of the British Government in many parts of India to raise such forces for the Native States, at their expense, in lieu of the military aid which the States were bound by treaty to render in time of need. These contingents, though commanded by British officers, and equipped and disciplined after the British method, formed a service apart from the British Army. They were as soldiers under somewhat different conditions, and had not much in common with the British line.

It seemed, therefore, possible that masses of contingent troops, carefully isolated, might act as a check on the regulars; and that the spread of disaffection among the latter might be prevented by the uncertainty whether sympathy with themselves, or the ties of discipline, would prevail in the ranks of the local forces. It was at best a precarious chance, but it was the only one; and so long as isolation was maintained the contingents of Central India did in fact remain outwardly loyal.

Besides the contingents there were the State troops proper, generally a rabble, ill officered and ill equipped, but raised in great part from the natives of the country, and very unlikely, therefore, to join against us if their chiefs remained loyal. Considerable numbers of these troops were to be found in the several States. They were, however, not all composed of natives of the States, for it had long been the custom for the chiefs to maintain bodies of foreign mercenaries—Afghans, Arabs, and the like—who were greatly feared by the weaker and less warlike people of India, and were a perpetual source of danger and disorder.

The disposition of the various forces was as follows:—

At Mhow, some five-and-twenty miles north of the Nerbudda, and the first military post on the main line of road, were stationed the only regular troops under Colonel Durand's orders within the western part of the Agency. These were the 23rd Native Infantry and a wing of the 1st Cavalry, the other wing of which was at

Neemuch. At Mhow also was stationed the European battery under Captain Hungerford. It was from this point that trouble was all along apprehended.

Thirteen miles higher up the road lay Indore, the headquarters of the Agency. In Indore itself, or rather at the Indore Residency, was a detachment of the Malwa contingent, 200 strong, which acted as a guard for the Treasury and other public buildings; while in the city was a large force of all arms belonging to the Maharajah Holkar. At Sirdarpore to the west of Indore, about fifty miles distant, was a regiment of Bheels, a wild jungle tribe, having nothing in common with Hindustani troops.

Above Indore there was no military station on the line of road for something like 200 miles. But flanking it on the west were the two stations of Mehidpore and Angur, thirty miles apart, and rather more than that distance from the road. Mehidpore was the headquarters of the Malwa contingent, while Angur was held by a detachment of the Gwalior contingent. Facing those stations, some fifty miles east of the main road, and nearly 100 miles from Indore, was Sehore in Bhopal, the headquarters of the Bhopal contingent. Higher up again, in Scindia's territory, and on the road itself, lay Goonah, 180 miles from Indore. Some sixty miles further north was Seepree, and seventy miles above it Gwalior. These three stations were all occupied by troops of the Gwalior contingent, the headquarters of which were at Gwalior itself, only sixty-five miles south of Agra.

Mhow therefore was entirely isolated. Below it lay the Nerbudda and the troops of Bombay and Madras, while above it overwhelming numbers of contingent and Durbar troops were spread out over the country, and debarred all passage to the northward.

The Gwalior force alone numbered about 8000 men. So long as the contingents remained faithful, Colonel Durand

could make sure of eventually crushing any attempt at revolt on the part of the regulars at Mhow, and of holding his own against the troops in the 'Saugor and Nerbudda territories.' But on the fidelity of the contingents everything depended.

Such was the state of affairs in Central India when on May 14 news arrived of the great catastrophes at Meerut and Delhi. It was a critical moment, for the Treasury at Indore was a tempting prize, and the guard available for its defence was a small one.

Colonel Durand immediately sent out right and left for reinforcements, but these could not arrive before the 20th, and the Mhow troops could hardly be kept so long in ignorance of what was passing. It was impossible to say how they might be stirred by the tidings. The city of Indore itself was full of dangerous classes who would only be too ready to join in any undertaking offering a chance of plunder. The European battery, wholly without supports, could not be expected to do much against the mutineers. Indeed, it seemed only too probable that if either infantry or cavalry plucked up courage for a rush the guns must fall an easy prey. The danger was narrowly escaped. It afterwards transpired that the Mhow troops had debated among themselves whether they would make a dash for the north *via* Indore before reinforcements could arrive. But they were not at the time sure of Holkar's people, and they allowed the chance to go by.

On the morning of May 20 the chance would have been too late, for the Bheel corps from Sirdarpore, 270 strong, about the same number of Bhopal contingent infantry, with two guns, and two troops of Bhopal contingent cavalry, mostly Sikhs, had been brought in by forced marches.

For a few days after the arrival of reinforcements at Indore things seemed to be going on better. The regulars in Nowgong and Jhansi were loud in their professions of loyalty. The city of Indore, which from the 15th to the 20th had been in a state of the wildest alarm, began to regain its wonted composure. It was

reported from Agra that 'the plague was being stayed.' The Delhi mutineers, some 3000 strong, were clinging to the walls and living by plunder. The 'final advance' of our army was about to be made, and it seemed likely that the news of the city having fallen would soon come to confirm the wavering and check the spread of disaffection. But as the month of May wore to a close this gleam of sunshine was overcast. Disquieting rumours came in from Neemuch and Nusseerabad. A body of the Gwalior contingent cavalry, pushed up, contrary to Durand's wishes, into contact with the mutinous masses in the north, deserted its European officer, and went into open revolt. General Ramsay, who commanded at Gwalior, expressed himself doubtful of the whole contingent, and refused to call in any detachments to headquarters. Nearer at hand, Colonel Travers, commanding the Bhopal contingent, reported that emissaries from the 23rd Native Infantry were tampering with his men. Writing to Lord Elphinstone, the Governor of Bombay, on May 31, Durand summed up the position as follows: 'No great reliance can now be placed on contingents, any more than on their comrades of the regular army. In Central India [. . there is nothing for it but to hold the one in check by the other, until some blow struck by the Commander-in-Chief tells as a sedative. Every day's delay is, however, rendering our position, here as elsewhere, more precarious.'

The early days of June brought tidings of a still more serious nature. On the 1st Durand learnt that the Nusseerabad troops had risen and marched off in a body towards Delhi. Five days later it was known that the force at Neemuch had followed their example, and foremost among the mutineers had been the wing of the 1st Cavalry.

It was very doubtful how the Mhow troops would take the news. Colonel Platt was still confident, but the Durbar Vakeel, or representative of Holkar at the Residency, insisted that they were on the point of rising, while from other sources came the information that they had been incited to mutiny by the Durbar itself.

It was said that they meant to rise on the 9th, to surround and overwhelm the European battery, and then, 'with Holkar in their favour,' attack the Treasury at Indore.

But if any rising had been contemplated, it was not carried into execution. The news of the Neemuch rising filtered through the ranks and seemed to produce no fresh excitement. The cavalry remained outwardly respectful, and the 23rd volunteered to march against the mutineers. It seemed just possible that all might yet go well; that distrust of the Maharajah's troops and of the heterogeneous detachments collected at Indore might be sufficient to curb the Mhow force. Durand was well aware that Holkar's name was being made use of among the Sepoys as an incentive to revolt, but he attached little credit to tales of Holkar's disloyalty. 'Holkar is with us,' he wrote to Lord Ellenborough on June 6; and two days later, 'Holkar's fears and interests are on our side, and so far as any Durbar, especially a Mahratta Durbar, is trustworthy, Holkar's seems so. I have seen nothing suspicious.' On the 9th Durand learnt that the Malwa contingent cavalry, which contrary to his orders had been brought within reach of the Neemuch mutineers, had murdered their officers and gone off in a body. The defection of this force was peculiarly unfortunate, for the men had many relatives among Holkar's cavalry, so that their misconduct naturally threw suspicion on the latter, and Holkar himself confessed that he was no longer sure of his troops. But there was little further aid available. Beyond calling in Colonel Travers from Sehore with the rest of the Bhopal contingent cavalry, some fifty men, nothing more could be done to make the position secure. Colonel Travers was a brave and capable soldier, and his presence was of special advantage.

Meanwhile more bad news had come in. A terrible massacre of Europeans was reported from Jhansi; the troops at Nowgong were said to have followed suit; and worse than all, on the evening of June 14, the interruption between Gwalior and Seepree

gave the first intimation that the great main road itself was in danger. Two days later the cause of the interruption was known; the Gwalior contingent had risen, and Scindia's capital was in the hands of the mutineers. The communications with Agra along the direct road were now cut off; for 100 miles below the Chumbul the line was gone; and as detachments of the Gwalior contingent held Seepree and Goonah it seemed likely that the flame of insurrection would run down the line, and that the telegraph would soon be working only upon these last 150 miles above Indore.

The apprehension was soon verified. On the evening of the 20th an express from Captain Harrison, who commanded a troop of the contingent at Goonah, announced that the Seepree officers had joined him, and added that he was falling back on Indore. He was ordered to halt his troops at Beowra, 120 miles north of Indore, and to keep up telegraphic communication from there. Letters from Agra and our northern provinces had now to travel round by Jeypore in Rajputana, and even so their safety was very doubtful. Strange missives they were, many of them scraps of thin paper two or three inches square, covered with close writing, that told too often of disaster and delay, of cowardly massacres, and of unavailing attempts to avenge them. Nevertheless he did not despair of holding his own. He was resolved, at all events, that Indore should not fall without a struggle. 'On the contrary,' he wrote to Lord Canning, 'I hope that if attacked we can maintain a hard fight, and I have no intention of throwing up the game here lightly, or without a struggle that shall be costly to those who dare an attack.' He wrote also to Lord Canning's private secretary: 'This is an ugly complication,' and, 'You must show this private letter to Lord Canning. Our measures, whether of offensive or defensive character, are arranged, and if we can only get our contingent troops to act decently, which please God, if they are not very severely tried, I trust we may, we should be able, I think, to bring off the European battery, if

it were contending against the 23rd Native Infantry and 1st Cavalry single-handed, or if suddenly attacked here defend the Treasury and Residency with heavy damage to those who attacked.

'Though I hope to write to his lordship to-day, still sometimes pressing emergent letters leave me scarce a moment for anything else. Events come so thick and fast, and yet so unfavourable.'

The copy of this letter, and indeed the copies of all letters written by him at this time, were in Mrs. Durand's handwriting. From her he concealed nothing; and at the worst of times, when depression and despondency were general, her calm courage and self-possession were always to be trusted. Though she knew all, and though the danger was such that a woman's heart might well have quailed before it, not a word of fear or doubt ever escaped her. A soldier's daughter and a soldier's wife, she confronted all with the same unruffled serenity, ever forgetful of self, and ever striving to cheer and comfort those about her. Not only women but men, and brave men, have acknowledged how much they owed to her words and her example.

Until the end of June the fate of Central India was trembling in the balance. For a few days after the mutiny at Aurungabad it seemed as if the crisis might still be safely passed. News came that Woodburn had trampled out the rising, and was free to march on Mhow, and at the same time information was received that Delhi had fallen on the 12th. But these good tidings were soon found to be delusive, and the reaction turned the scale.

On the 28th Lord Elphinstone telegraphed that Woodburn could not advance, and inquired as to the probable effect upon Colonel Durand's charge. The latter immediately replied that he could not answer for one hour for the safety of Central India, if it should become known that this column was not marching on Mhow. He pointed out that there was no difficulty in its path, and urgently pressed Lord Elphinstone to push on the little force without delay. Lord Elphinstone telegraphed in reply that the

advance had not been countermanded, but the reply came too late. The contents of the first telegram had leaked out of the signaller's office, and were soon known in the bazaars; and about the same time one of the Indore bankers received bad news from Delhi which he would not communicate to Durand. What that news was became only too soon apparent. On the morning of July 1 a letter came in from Agra, which set all doubts at rest. It was dated June 20, and showed that the former report of the fall of Delhi had been premature. Up to the 17th the British position had been repeatedly attacked: it was all we could do to hold our own; and the General had determined to await reinforcements before venturing on an assault.

About half-past eight o'clock on the morning of the 1st Colonel Durand was at his writing-table, condensing this information into a telegram for Lord Elphinstone, when a messenger rushed into the room, and reported that there was a commotion in the bazaar. The noise rose rapidly, and Durand laid down his pen to see what was the matter. He was not long in doubt. A fortnight before two companies of Holkar's infantry, and three of his 9-pounders with ammunition supplied from the Mhow arsenal, had been brought over to strengthen the garrison of the Residency. As he came out upon the Residency steps these guns opened fire, and sent a shower of grape into the Bhopal contingent lines. At the same time the infantry made a rush for the unarmed Europeans who were scattered about the neighbouring buildings, and endeavoured with too much success to cut them off from the Residency, which was the appointed rendezvous in case of a rising. The surprise was complete. The cavalry at their pickets had received the greater portion of the discharge, and as fast as the men could saddle and mount they came rushing out wild with alarm. All attempts to form them were useless. Colonel Travers, who was in command, did the best thing that could be done under the circumstances. Directly Holkar's artillery opened, he had hastened to the cavalry picket, which was posted

in the Residency stable square, and while in obedience to his orders the rest of the troops were getting ready, he led out these horsemen for a charge upon the guns. He hoped by an immediate blow to disconcert the enemy, to delay the development of the attack, and gain time for our own men to get under arms, and above all to check the massacre of Europeans and aid the escape of our fugitives. Unhappily treason had done its work in the ranks of the contingent. Three times the picket was formed up; and three times the formation was broken from the rear by a Native officer, who was subsequently hanged for this misconduct. To delay any longer would have been fatal, and Travers saw that there was only one chance left. Giving up the attempt to form his men, he called on them to follow, and rode straight at the muzzles of the guns. His example was not sufficient to stir the blood of the panic-stricken troopers. Five men, all Sikhs, followed him, and got in among Holkar's gunners, but the rest of the picket hung back, and the chance of taking the guns was lost. Holkar's infantry, who were scattered about slaying women and children, came rapidly up to the support of the guns, and against them six horsemen could do nothing. Travers returned, with his horse wounded and his sword slings cut through, chafing indignantly at the misconduct of his men, while the enemy gathered fresh courage from the failure of the charge. Their guns now moved round unmolested by the left of the infantry lines, and took up a new position in front of the Residency, a position they could not have held and would not have taken had they not been sure of the contingent infantry. They were supported by Holkar's cavalry, and by the two companies of infantry which had been posted for the defence of the Residency.

The gallant attempt of Colonel Travers had, however, served to gain a little time. Durand had written a note to Colonel Platt at Mhow, asking for the aid of the European battery, and had made such arrangements as he could to get the Bheels in order. These men were loyal and obedient, though evidently shaken.

The two guns of the Bhopal contingent now moved forwards to meet the enemy's attack; and those of the Native gunners who had not made off, fourteen in number, did their duty well under the direction of two European sergeants, Orr and Murphy. Captain Cobbe, of the Madras Artillery, had at first tried to take command. Though so prostrated by illness that the Agency Surgeon told him it was as much as his life was worth to move, Cobbe managed to crawl to the guns; and there he remained for a time, too weak to stand, but showing a noble example of soldierly spirit and courage. The guns, meanwhile, were admirably served, and one of the enemy's pieces was soon disabled, and his supports driven off.

Once more a forward movement on the part of our cavalry might have decided the day in our favour. But nothing would induce them to seize their opportunity. A portion galloped off to their homes at Sehore, spreading the report that every European at Indore had been massacred, while the rest gathered in a shapeless heap to the rear of the Residency.

The behaviour of the infantry was still worse. The men of the Bhopal contingent, some 270 strong, instead of moving out to the support of their own guns, levelled their muskets at their own officers, and drove them off. The Mehidpore contingent infantry, of whom about 200 were in the lines, refused to obey orders and remained sullenly aloof. The Bheels were so far manageable that they allowed themselves to be formed, but fight they would not. By incessant exertion their officers succeeded in making them keep their ranks; but Colonel Stockley reported them too unsteady to be thrust into action, and all thoughts of an advance had to be given up.

One last chance remained. Durand's note, asking for the European battery, had been despatched by the hands of a Native trooper. If this man had galloped into Mhow, thirteen or fourteen miles, and if the battery were able to come, and had moved out at once, two or three hours more should have sufficed for its

arrival at Indore. A stand might possibly be made until this time, or at all events until the receipt of an answer. The Bheels, therefore, were thrown into the Residency in the hope that they might pluck up courage under cover, and do something to punish the attacking force. The hope was a vain one. Holkar's guns had now moved round to their original position, where they had more shelter, and were pouring a well-directed fire of round shot and grape into the Residency building itself. This did little harm; but the Bheels were completely cowed, and could not be induced to discharge their pieces even from the comparative security of the Residency windows.

The whole work of defence was left to the fourteen faithful gunners, and it soon became clear that even if Hungerford's battery were able to leave Mhow, it would arrive too late to do more than cover a retreat.

The attack was no longer a tentative one. Encouraged by the impunity with which the guns had for nearly two hours cannonaded the Residency, Holkar's troops in the city came pouring up to their support, and the lines were rapidly emptied. Holkar was known to have a powerful force. Besides the three guns which were firing on the Residency, he had nine good English 6- and 9-pounders, with some fifteen or twenty others of various calibres. His cavalry numbered 1400 sabres. His infantry was at least 2000 strong, and was backed by the armed rabble of the city. To make matters worse, nearly 500 mutinous contingent infantry were biding their time within the Residency lines.

At this time Captain Magniac, the officer commanding the Bhopal contingent cavalry, came up for the third time with a message from his men. They intimated that they were about to consult their own safety, further resistance being hopeless, and begged that this last chance might be taken of saving the women and children. Some of Holkar's guns and cavalry were said to be moving round to cut off the retreat, and they intended to make their escape before it was too late.

At the same time the faithful gunners, seeing that they were deserted by the rest of the force, began naturally enough to lose heart, and some of them left their guns and sought a place of shelter.

To fight longer with any chance of success was impossible; for the flight of the Bhopal Horse would have cut away even the faint show of strength which remained.

All the Europeans who had not been murdered were now in the Residency, and the last hope of saving them was to retreat while retreat was possible. To cling to the Residency was to pronounce the doom of the little company. At half-past ten the order was given. The mutineers had cut off all the horses and carriages, but the ladies and children were mounted on the artillery wagons, which were drawn by bullocks; and thus, with the Bheels and cavalry covering the rear, the little force moved slowly off under the fire of Holkar's guns. Small as it was, it was yet sufficient to command a certain amount of respect; and Holkar's troops, shrinking from a hand-to-hand fight, or satiated by the slaughter of our people who had been cut off outside the Residency, turned to the more congenial occupation of plundering the Treasury. In this they were joined by the men of the contingents. In the fight itself our loss had not been heavy. A few Bhopal contingent horsemen, a few Bheels, and some bullocks were killed, and one of the European sergeants was wounded, but the ladies and children escaped untouched.

The line of retreat was that on Mhow, but the first portion of the road was found to be in the hands of the enemy, and the Bhopal cavalry could not be persuaded to follow; and the attempt had to be given up. The next best course was to circle round Mhow and make Mandlesur, on the Nerbudda, which had been prepared by Durand's orders as a place of refuge for our people in case the Mhow troops rose. Unhappily, this place also failed. When the force arrived at Tillore, about ten miles from Indore, some villagers came up with the information that four

guns and some of Holkar's cavalry had gone on in advance the day before and occupied the pass. It was decided to force the pass and descend on Mandlesur, but once again the fears of the cavalry stepped in. They steadily declined to obey the order, and intimated in the plainest terms that if the attempt were persisted in they would detach themselves from the force, and leave the Bheels to follow alone. There was then nothing left but to give up the Mandlesur route. The only chance of keeping together the semblance of a force and of effecting an orderly retreat was to humour the cavalry and march eastward on Sehore. This was done, and the remnant of the Indore garrison marched into Sehore on July 4, bringing in its guns and every European who had reached the Residency on the morning of the outbreak. For the time the contingent remained loyal, and the troops of the Bhopal state behaved well. The Sekunder Begum was still at the head of affairs, and she succeeded in keeping down the gathering spirit of revolt. A braver heart and a cooler head than hers did not exist in Central India, and though in the end the Bhopal force also mutinied, her loyalty was never for a moment called in question.

'During all this trying march the courage and presence of mind displayed by Mrs. Durand were invaluable in keeping up the spirits of the fugitives, and extorted the highest admiration from the officers of the force. In August she died at Mhow, from the effects of the fatigue and exposure she had undergone.'[1]

A force of about 1400 was collected at Mhow, whither Durand had retired, and this took the field as soon as the rainy season had subsided. Brigadier Stuart commanded, and Durand, as Agent to the Governor-General for Central India, acted as Political Officer.

The first point attacked was Dhar, outside which the rebels were defeated, and the siege of the fort commenced.

The siege lasted ten days. The enemy did not wait an

[1] Plunkett's Memoir of Durand, *Profess. Papers*, vol. xxii.

assault, but escaped in the night, leaving their guns behind them. From this place the column marched north to Mandlesur, where a large force of rebels had assembled. Here they inflicted two severe defeats on their adversaries, dispersing their force with heavy loss. The column then marched southwards, and returned to Mhow and Indore, where it arrived on December 15, when, though the reinforcements which he had been looking for from the north had not arrived, Durand called upon Holkar's regiments to lay down their arms. The whole of the troops (including the two regiments which had taken part in the attack on the Residency) quietly submitted, and the next day Durand handed over charge to Sir R. Hamilton, during whose absence in England he had held charge of Central India. These operations cleared the way for Sir Hugh Rose's brilliant campaign in Central India. Lord Canning thus wrote: 'Colonel Durand's conduct was marked by great foresight and the soundest judgment, as well in military as in civil matters. He had many points to guard, and the force at his disposal was almost hopelessly small; but by a judicious use of it, and by the closest personal supervision of its movements, Colonel Durand saved our interests in Central India until support could arrive.'

After leaving Indore Durand went to Bombay and Calcutta, where he remained for a short time.

At the end of April 1858 he was placed by Lord Canning on special duty in connection with the reorganisation of the Indian Army. In January 1859 he was appointed to the Council of India, and here he remained for two years. At this time much debate was taking place on the subject of the transfer of the government of India to the Crown, and the numerous changes, reforms, and amalgamations consequent on that important step. The able minutes which Durand penned upon the various branches of the subject prove him to have had a statesmanlike grasp of the questions submitted for decision, and his views carried great weight. In May 1861 he was offered by Lord Canning the

Foreign Secretaryship in Calcutta. At first he refused this post, but finally accepted it, and on July 4 started for India. He was strongly influenced in this matter by his desire of making room in Council for Outram.

He ably filled the post of Foreign Secretary for four years, and in the summer of 1865 he was appointed Military Member of the Viceroy's Council, and his period of duty in this post closed early in 1870. Lord Mayo had wished to amalgamate under one head the two great Agencies of Central India and Rajputana, and proposed that Sir Henry Durand should hold the post; but he declined it, objecting to the principle of the scheme, and to accepting it himself.

He was therefore offered the Lieutenant-Governorship of the Punjab, and on June 1, 1870, he was sworn in. The Governorship of the Punjab was a post second only to the Viceroyalty. It is our barrier against Central Asia, and as such forms the most important outwork to British power in India. The people are brave, hardy, and self-reliant, requiring a vigilant and firm ruler. These qualities were eminent in Durand, and it was universally felt that he was the man for the place. Unfortunately, he was not destined to live long enough to justify Lord Mayo's choice.

While he was still engaged in his first tour of inspection through the province, he met with the accident which caused his death. On December 31, 1870, he was entering the town of Tonk on an elephant; the howdah struck the top of the gateway and was carried away. He fell heavily to the ground, was picked up insensible, and on the following day he died.

One who learnt to know him during the last five years of his life, wrote: 'None who knew him well can speak otherwise than with deep love of him. The combination of extreme strength and tenderness was to me his chief charm. His manner to those who were in any way objects of pity was the very beauty of gentleness, yet he was a man of iron: his will, like his frame, was cast in an heroic mould. To those who deserved his confidence he

was without reserve. His long experience, his wide reading, his culture, and his natural cheeriness made him a delightful companion. If he had enemies, a man of his strong views, and his contempt for what he thought selfish or unjust, was sure to have them. He spoke sometimes, too, in public with a warmth which seemed to justify the complaint of those who characterised him as "bitter." Warmth was of the essence of his character. But I have often been struck by the manner in which he weighed his words, and spoke as if protesting to himself, when in private conversation he disparaged any of those about him in public life.' It was universally admitted that by his death India had lost one of her ablest men and wisest administrators. He was promoted Major-General in 1867, and was made a Knight-Commander of the Star of India. His eldest son, Sir Edward Law Durand, C.B., Lieut.-Colonel, retired I.S.C., British Resident at Nepal 1888–91, was created a Baronet in 1892.

[From *Addiscombe: its Heroes and Men of Note*, by Colonel Vibart; *History of the Corps of Royal Engineers*, by Major-General Porter; *The Life of Sir Henry Durand*, by his son, H. M. Durand, C.S.I.]

MAJOR-GENERAL SIR ANDREW SCOTT WAUGH

Son of General Gilbert Waugh, born February 3, 1810, passed out of Addiscombe December 1827, in half the ordinary time, at the head of his term. He landed in India May 25, 1829, was first posted to the Sappers, and then to the Public Works Department, where he was Garrison-Engineer at Allahabad and superintendent of the foundry at Fort William. In March 1831 he was appointed to assist Captain Hutchinson in the construction of a new foundry at Cossipore, and was Adjutant to the corps of Engineers in April 1831. On July 17, 1832, he was appointed to the Great Trigonometrical Survey, and took part in the measurement of the great arc of the meridian from Cape Comorin to Deyrah Dhoon.

The principal triangulation of India occupied a period of

upwards of fifty years from the date when Everest took charge of the work, being only brought to a conclusion in the year 1882. It had been all that time under the control of Engineer officers. Some of the difficulties encountered in the performance of the duty are thus recorded by General Walker, F.R.S., who succeeded Waugh as Surveyor-General of India:

'Many regions, as the base of the Mahanuddi, the valley of Assam, the hill ranges of Tipperah, Chittagong, Arracan, and Burmah, and those to the east of Moulmein and Tenasserim, which form the boundary between the British and the Siamese territories, are covered with dense forests up to the summit of the peaks which had to be adopted as the sites of the survey stations. As a rule the peaks were far from the nearest habitation, and they could not be reached until pathways to them had been cut through forests tangled with dense undergrowth of tropical jungle; not unfrequently large areas had to be cleared on the summits to open out the view of the surrounding country. Here the physical difficulties to be overcome were very considerable, and they were increased by the necessity that arose in almost every instance of importing labourers from a great distance to perform the necessary clearances. But the broad belt of the forest tract known as the Terai, which is situated in the plains at the foot of the Nepalese Himalayas, was the most formidable region of all, because the climate was very deadly for a great portion of the year, and more particularly during the season when the atmosphere was most favourable for the observations, though the physical difficulties were not so great as in the hill tracts just mentioned, and labour was more easily procurable. Lying on the British frontier at the northern extremities of no less than ten of the meridional chains of triangles, it had necessarily to be operated in to some extent. In consequence of difficulties with Nepal the connecting chain of triangles now known as the North-East Longitudinal Series, had to be carried through the whole length of the Terai, a distance of about 500 miles, which involved the construction of over 100

towers, raised to a height of about thirty feet to overlook the earth's curvature, and the clearance of about 2000 miles of line through forest and jungle to render the towers mutually visible.'

Everest retired from his office in 1843, and was succeeded by Waugh, who, in his turn, was, in 1861, replaced by James Walker (afterwards General, F.R.S., C.B.), the author of the paper from which this sketch is taken.

The extent of the operations carried on in the principal triangulation of India may be realised from the fact that, without taking into consideration the primary network of Southern India, there remained in 1889 a series of chains, meridional, longitudinal, and oblique, of a combined length of 17,300 miles, containing 9230 primary angles. The work rests on eleven base lines, all measured with Colby's compensation bars.

The levelling for altitudes has had to be performed under great difficulties, owing to the variations in the temperature of the country. On this point Walker records :—

'In the plains the apparent height of a station ten to twelve miles from the observer has been found to be upwards of 100 feet greater in the cool of the night than in the heat of the day, the refraction being always positive when the lower atmospheric strata are chilled and laden with dew, and negative when they are rarefied by the heat radiated from the surface of the ground. At hill stations the rays of light usually pass high above the surface of the ground, and the diurnal variations of refraction are comparatively immaterial, and very good results are obtained by the expedient of taking the vertical observations between reciprocating stations at the same hour of the day, and as near as possible at the time of minimum refraction ; but in the plains this does not usually suffice to give reliable results. The hill ranges of Central and those of Northern India are separated by a broad belt of plains which embraces the greater portion of Scinde, the Punjab, Rajputana, and the Valley of the Ganges, and is crossed by a very large number of the principal chains of

triangles, which are in most cases of considerable length. Thus it becomes necessary to run lines of spirit-levels over the plains from sea to sea to check the trigonometrical heights. The opportunity was taken advantage of to correct all the levels which had been executed for irrigation and other public works, and reduce them to a common datum, and eventually lines of level were taken along the coast and from sea to sea to correct the tidal stations. The scale adopted for the Topographical Survey is one inch to a mile. There is also a Revenue Survey of four inches to the mile, which shows areas and boundaries of villages. There are in addition to these large-scale surveys of various isolated districts in all the three Presidencies.

The Grand Trigonometrical Survey of India has been the source of reputation to many Engineers. The names of Everest, Waugh, and Walker are indissolubly connected with it. Others have also become famous in the same school, the two Sir Henry Thuilliers and Colonel D. G. Robinson (see memoir).

The North-West Himalaya series was the longest series ever carried between measured bases, being 1690 miles long. On the South of India, the South Concan, the Madras coast series, and the South Parisnath series were begun and finished. Sir George Everest's great conception was completed about 1847–48, and Colonel Waugh had before him the vast territory that lay in Scinde, the North-West Provinces, and the Punjab, and another gridiron of the triangulation was projected to the east of the great arc series, on a far grander scale, to comprise this area.

The Mutiny breaking out much delayed this work, which was finally completed in 1860. In 1858 the levelling operations were commenced to verify the height of the base line at Deyrah.

Of all the Indian Survey work that originated in Colonel Waugh's tenure of office, the survey of Cashmere was the chief. This survey was not completed till 1864.

Lord Canning wrote in 1859: 'I cannot resist telling you at once with how much satisfaction I have seen these papers. It is

a real pleasure to turn from the troubles and anxieties with which India is still beset, and to find that the gigantic work of permanent peaceful usefulness, and one which will assuredly take the highest rank as a work of scientific labour and skill, has been steadily and rapidly progressing through all the turmoil of the last two years. I never saw a more perfect or artistic production of its kind than this map. You have given me a new proof of what I long ago discovered, that there never was a more able, zealous, reliable body of English gentlemen brought together under any government than the corps of Engineers of Bengal.'

During Waugh's tenure of office he advanced the triangulation by no less than 316,000 square miles (three times that of England, Wales, Scotland, and Ireland), and 94,000 were topographically surveyed.

Waugh retired in 1861, and her Majesty conferred upon him the honour of knighthood.

He was Surveyor-General of India for seventeen years, and on his retirement the members of the Survey presented him with a service of plate and an address.

In 1856 the Royal Geographical Society gave him their gold medal. He was twice married: first, in 1844, to Josephine, daughter of Dr. Graham of Edinburgh; and secondly, in 1870, to Cecilia, daughter of Sir Thomas Whitehead, K.C.B., of Uplands Hall, Lancashire.

He died on February 21, 1877, aged sixty-seven years.

[From Porter's *History of the Corps of Royal Engineers.* Vibart, *Addiscombe, its Heroes and Men of Note.*]

GENERAL SIR WILLIAM ERSKINE BAKER, K.C.B.

Sir William Erskine Baker (1808-1881), General and a distinguished Engineer, was the fourth son of Captain Joseph Baker, R.N., and was born at Leith in 1808. He was educated at the East India Company's Military College at Addiscombe, and

went out to India as a Lieutenant in the Bengal Engineers in 1826. He was promoted Captain in 1840, and saw service in the first Sikh War. He led one of the attacking columns to the entrenchments at Sobraon, for which he was thanked in the despatch and promoted Major.

He was afterwards exclusively employed in the Public Works Department, was successively Superintendent of the Delhi Canals, Superintendent of Canals and Forests in Scinde, Director of the Ganges Canal, Consulting Engineer to the Government of India for Railways, and Secretary to the Government of India in the Public Works Department. His services as a civil engineer were very great, and he was regarded as the greatest authority on irrigation.

Soon after his arrival in India he was placed in the Irrigation Department in the North-West Provinces, under Colonel Colvin. This was, at the time, the post most sought after by young officers, and was made the subject of careful selection. Napier (afterwards Lord Napier of Magdala) and Durand (afterwards Sir Henry Durand) were both colleagues of Baker in the service of the great Jumna Canals, and there is no doubt that all three of these distinguished officers owed much of their success to the training they there received. When Colvin returned home in 1836, Lieutenant Baker succeeded him in charge of the Jumna Canals, which he held until 1843. In that year Sir Charles Napier applied to the Governor-General for the best scientific assistance he could furnish him with for the development of irrigation works in Scinde, and Lord Ellenborough selected Captain Baker, and despatched him thither with the appointment of Superintendent of Canals and Forests. In 1845-46 he took part in the Sutlej campaign. At Sobraon he guided the main attack on the Sikh entrenchments. Lord Hardinge thus refers in his General Order to Baker's services: 'To Captain Baker and Lieutenant Becher of the Engineers, the Governor-General's acknowledgments are due for leading the division of attack into the enemy's camp. These

officers well maintained the reputation of their corps whenever gallantry or science may be required from its members.'

To Sir William Baker fell the duty of organising the public works of India as a separate department of the State, and he was one of the principal advisers of the Government during the anxious period of the change from the old to the new army system in that country. In 1847 Mr. Thomason, the Lieutenant-Governor, urged the formation of a Civil Engineering College at Roorkee, the headquarters of the Ganges Canal, and Major Baker entered warmly into the proposal, and made all the arrangements for starting the College. In January 1848 Cautley returned to the Ganges Canal, and Baker went on furlough after twenty years' absence from England. Cautley greatly praised his management of the canal works during his absence.

While in England he studied the English railway system, and in 1851, soon after his return, he was appointed member of a commission to report on the reorganisation of the department and was made Consulting Engineer for Railways. He co-operated indefatigably with Sir R. M. Stephenson and Mr. George Turnbull in the design and construction of the East Indian Railway. He thoroughly won their respect and regard, and the Government control in his hands was exercised with as much courtesy as firmness. Lord Dalhousie made use of his advice in a great variety of matters connected with public works projects and questions which had nothing to do with railways; and finally Lord Dalhousie wished to appoint him to the new office of Secretary to the Government Public Works Department in August 1854, and Baker was accordingly appointed the first Secretary early in 1855.

Shortly before this the section of the East Indian Railway from Howrah to Burdwan was publicly opened on February 3, 1855. Sir John Peter Grant on this occasion said: 'To Colonel Baker's energy, to his experience in Indian works of vast magnitude, to his industry, to his judgment, and to his imperturbable temper, the Government of India owed much, their railway owed much, and

he might venture to say every passenger who might in after years travel on the railway from Calcutta to Delhi would owe much.' Lord Dalhousie, on leaving India in March 1856, thanked him for his constant and most efficient aid, and expressed his desire to see him again. In 1857 his health began to fail, but owing to the Mutiny he deferred his departure until after the fall of Delhi and relief of Lucknow. Lord Canning on November 10, 1857, wrote of Baker:—

'The Government of India does not, so far as my experience goes, possess a more able, zealous, indefatigable, and useful officer in the ranks of its service, or one more thoroughly well fitted by knowledge, temper, and character for the discharge of very trying duties.' Colonel Baker left India on November 11. Those who had served under him placed a fine bust of him (by Sir John Steele of Edinburgh) in the Public Works offices at Calcutta.

'In India he was, in war, daring and indefatigable in reconnaissance: in the peaceful field-work that occupied so much of his time in connection with many projects, he always seemed to do in a day several more miles of survey or levelling than anybody else, and at the India Office he was ever the earliest at his desk and the latest to leave.' He was for many years the representative of the India Office on the Army Sanitary Commission. Lord Napier wrote: 'In Sir William Baker, with courage of the highest order, were combined a very high military intelligence, and a spirit of enterprise which would have made him more eminent as a soldier. Through all and every duty he was regarded by every statesman under whom he served as a pillar of strength; by every officer who served under him as an object of unbounded confidence and affection.'

He was a thoroughly practical scientific geologist, and formed a most valuable collection of the fossils of the Siwalik range. He presented the Natural History Museum at South Kensington with one of the most valuable discoveries in this line, in the form of two gigantic tusks of a fossil elephant, eleven feet in length.

Sir Stafford Northcote (afterwards Lord Iddesleigh) wrote, December 1, 1868: 'Since I have been at this office I have found in him one of the most valuable public servants with whom it has been my good fortune to become acquainted in any Government department. At the time of the preparations for the Abyssinian campaign in particular, he rendered the most important assistance to us, and undertook a very unusual amount of labour.'

Lord Salisbury wrote (when Baker was leaving the Council): 'I not only lose a kind and courteous friend, who has made consultation on a very difficult and thorny subject pleasant, but an adviser of tried judgment and experience. It has been my unpleasant lot during my short term of office to fill several vacancies, but this will be the hardest of all.' All his papers were marked with clearness, simplicity, and businesslike brevity, sound sense, and keen appreciation of the real crucial points of every question. His military promotion continued during his civil employment, and he became Lieutenant-Colonel in 1854 and Colonel in 1857. In 1857 he returned to England, and in the following year was appointed Military Secretary to the India Office. But his knowledge was rather that of an engineer than a soldier, and in 1861 he became a member of the Council of India, and in that capacity chief adviser to the Home Government on Indian engineering matters. He was promoted Major-General in 1865, Colonel-Commandant of the Royal (late Bengal) Engineers in 1871, and Lieutenant-General in 1874; he was made a K.C.B. in 1870, and in 1875 he withdrew from public life. He retired to his seat in Somersetshire, and, after becoming General in 1877, died there on December 16, 1881. Sir William Erskine Baker's work in Scinde is particularly memorable. The great irrigation works which he carried out there have rendered Sir Charles Napier's conquest of real value, and, according to Captain Burton, have made 'the desert flourish like the rose.'

[See Captain Burton's *Scinde, or the Unhappy Valley*; Porter's *History of the Corps of Royal Engineers*; Vibart's *Addiscombe, its Heroes and Men of Note.*

MAJOR-GENERAL EDWARD JOHN LAKE, C.S.I.

Son of Major Edward Lake of the Madras Engineers, was born at Madras on June 19, 1823. He was brought up by his grandfather Admiral Sir Willoughby Lake, was educated at Wimbledon, went to Addiscombe 1839, and passed out with his commission on June 11, 1840, in three terms taking the first mathematical prize.

He arrived in India July 30, 1842, and was posted to the Sappers to suppress an outbreak at Khytal, near Kurnal; and was employed in road-making under Sir Henry Lawrence. In the autumn of 1845, he served as a settlement officer in the Umballa district under Major George Broadfoot.

He was soon ordered on active service in the Sutlej Campaign, and was present at the Battle of Moodkee on December 20, where he was severely wounded in the hand, had a horse shot under him, and only escaped by running at the stirrup of a dragoon for a mile. He was afterwards sent to Loodiana, where he strengthened the defences and forwarded troops and supplies to the army in the field. When Sir Henry Smith's camp equipage fell into the hands of the enemy, just before the Battle of Aliwal, he was able to replace it, and received the approval of the Governor-General for his promptitude. He was present at the Battle of Aliwal. When the Jullundur Doab was made over to us, Lake was appointed an Assistant under John Lawrence, and had charge of the Kangra District, being stationed at Noorpore and at Jullundur. In May 1848, when Moolraj, Governor of Mooltan, showed hostility, Lake was specially selected as Political Officer to the Nawab of Bahawalpore, and in virtual command of his troops co-operated with Edwardes against Mooltan.

He took part on July 1 in the second Battle of Suddosain, near Mooltan, and for seven months was engaged in the operations against Mooltan. On the fall of Mooltan, Lake took part in the

Battle of Gujerat on February 21, 1849, accompanied General Gilbert to the Indus in his pursuit of the Afghans, and was present at Rawul Pindi when the Sikhs laid down their arms. For the next two years he had charge under John Lawrence of the northern part of the country between the Beas and the Ravee. In 1852 he went home and travelled in Russia, Prussia, Norway, and Sweden. He returned to India in 1854, and on August 22 was promoted Brevet Major for his services in the Punjab Campaign. He was appointed Deputy-Commissioner of Kangra, and in 1855 became Commissioner of Jullundur Doab. In 1857 he occupied the fort of Kangra, and held it until the Mutiny was suppressed. In 1860 he was obliged to go to England on sick leave. He became Lieutenant-Colonel on February 18, 1861, and in July married the daughter of T. Bower, Esq., of Beaumont, Plymouth. The same year he returned to Jullundur. In 1865 he was appointed Financial Commissioner of the Punjab, and in 1866 was made a C.S.I. In 1867 he again went to England on sick leave, and owing to ill-health was obliged to decline Lord Lawrence's offer of the post of Resident at Hyderabad. On December 31, 1868, he was promoted to Colonel, and on January 1, 1870, retired with the rank of Major-General. Owing to lung disease he had to leave London for Bournemouth, and thence went to Clifton, where he died on June 7, 1877, at the age of fifty-four. Lord Lawrence and Sir Robert Montgomery had a very high opinion of him. Montgomery wrote: 'The names of Herbert Edwardes, Donald McLeod, and Edward Lake will ever be remembered as examples of the highest type of public servants and devoted friends. . . . He had great aptitude for business, and remarkable tact in the management of natives.' Lord Lawrence also wrote: 'Had Lake's health stood the wear and tear of the continuous hard work inseparable from civil employment in India, he could have risen to a very high position. He might indeed have become Lieutenant-Governor of the Punjab, and I would have rejoiced to see him in that post.'

[From Vibart's *Addiscombe, its Heroes and Men of Note.*]

LIEUTENANT-COLONEL PATRICK STEWART, C.B.

SECOND son of James Stewart, Esq., of Cairnsmore, Kirkcudbrightshire, was born on January 28, 1832. Educated at Sunderland and Perry Hill, Sydenham, he went to Addiscombe in August 1848. He obtained his commission in June 1850, being head of his term and carrying off the Pollock medal. He reached Calcutta October 1852, and was first employed on a survey near Burdwan, but in May 1853 was gazetted to the office of Superintendent of Electric Telegraphs during the absence of Dr. O'Shaughnessy.

Lieutenant Stewart, besides making tours of inspection, was employed in arranging for the transmission of stores for the whole line from Calcutta to Lahore, and Agra to Indore, about 1100 miles.

In October, Stewart was appointed Aide-de-Camp to the Lieutenant-Governor of the North-West Provinces, but he still continued his work on the telegraph. Not long after this O'Shaughnessy returned to India, and Stewart's connection with the telegraph ceased for a while. In November 1853 Stewart very nearly lost his life, having been severely mauled by a tigress while out shooting. From January 1854 to the middle of 1856 he was employed in the Punjab on public works; but in July 1856 he was again appointed to the Telegraph Department, owing to the departure of Dr. O'Shaughnessy for England. Stewart suffered severely from accidental injuries, for besides the wounds inflicted by the tigress he had, at the close of 1854, a severe fall from his horse, when he was carried off insensible. On April 19, 1857, he arrived at Galle, and inspected the proposed line of telegraph through the island of Ceylon. He intended to continue his tour to Bombay, but before leaving the island heard of the Mutiny at Meerut, and was summoned to Calcutta. Landing at Madras, he had a long inter-

view with Lord Harris, and took charge of important telegrams for Lord Canning which had arrived from the Punjab and the North-West Provinces, the line from Agra to Calcutta having been cut. Before embarking he gave orders on his own responsibility for the commencement of a line of telegraph from Madras to Calcutta, in order to place the two Presidencies in direct communication at an early date.

On June 18 he left Calcutta for Benares, and a little later arrived at Allahabad. At this time Major Renaud's force was moving in the direction of Mahgaon, sixteen miles distant; Stewart thought this a good opportunity to inspect the telegraph line, and accompanied it. On July 9 he returned to Calcutta to hurry on the new coast telegraph. A fortnight after, he again returned up country.

During this second expedition his chief work, irrespective of the telegraph, was the strong fortified position at Raj Ghat. This was originated by Stewart, was sanctioned, and undertaken by Stewart himself, assisted by Lieutenant Limond.[1] In some six weeks a fortified position was constructed capable of containing 5000 men if necessary. Guns, stores, &c., were thrown in, and every preparation made for a siege; and to this the security of Benares was directly attributable. Stewart returned to Calcutta on September 16 to hurry on the great coast line of telegraph connecting Madras and Ceylon with Calcutta, but before the end of October he was again moving towards the scene of insurrection. He accompanied General Wyndham for more than 300 miles, and then went on in advance to arrange for transport. On November 2 he was again at Allahabad to accompany Sir Colin Campbell to Lucknow. He purposed to establish, if possible, telegraphic communications from Cawnpore to Alumbagh. On November 3 he reached Cawnpore, and on

[1] Afterwards Major-General Limond, C.B. He was Commanding Royal Engineer on the Khyber line during the second phase of the Afghan War of 1879-80.

the 5th he had laid down a line of telegraph for twenty out of the fifty-three miles between Cawnpore and Lucknow.

He was attached to the Headquarters Staff, assisted in the operations of the Second Relief, and in the Despatch was mentioned as having 'made himself particularly useful throughout.'

A few days later he was one of five officers who rode in to Cawnpore with Sir Colin Campbell while the firing there was still heavy. On December 6 he accompanied the Horse Artillery and Cavalry in the pursuit of the Gwalior contingent for fourteen miles. Two days after he left for business in Calcutta connected with the telegraph. He had carried the telegraph to the Alumbagh, but as soon as the opportunity occurred the enemy destroyed the work. On the centre building of the Alumbagh, whence floated the British flag, Stewart raised a semaphore which sent eloquent and cheering words to our beleaguered garrison in Lucknow. Returning to Calcutta immediately after the defeat of the Gwalior contingent, he was able to give Lord Canning details before any written account had come to hand. At Lord Canning's request he drew out plans illustrative of all the places at or near Lucknow, and five copies of the connected despatches with seven plans attached to each were sent to London for the Palace, the Horse Guards, and members of the Government.

On January 18, 1858, Sir William O'Shaughnessy returned to India and placed on record the admiration and gratitude with which he regarded the services rendered to the public and to the Government by Lieutenant Patrick Stewart.

In April 1858 he was again at Allahabad, and from that place he joined the army headquarters and was again attached to Sir Colin Campbell's staff.

The operations in connection with the capture of Lucknow were very greatly aided by the telegraph lines which were laid down by Stewart. The line of telegraph from Cawnpore to Alumbagh having been almost entirely destroyed, its reconstruction was no easy matter, yet on February 17 an office was opened

thirty-four miles from Cawnpore; on the 19th the line was completed and a second office opened at Alumbagh; and the first office having been closed, a new one was substituted twenty-six miles from Cawnpore. On the 4th the Native working party delayed progress by panic and flight, but on the 6th an office was opened at Dilkoosha. On the 12th the office was removed from the Martinière to a tent, for the convenience of the Commander-in-Chief. This was the first time a telegraph wire had been carried along under fire, and through the midst of a hostile country.

On April 9 Stewart returned to England. On August 28, 1858, he was made a Brevet Major after but eight years' service. In August 1860 Major Stewart married, and in the following November left for India, and reached Calcutta before the end of the year. In September he was appointed member of a Special Commission for ascertaining the cause of the great mortality from cholera, and this entailed a tour to Agra, Delhi, Lahore, Gwalior, and other places.

The great Mutiny of 1857 drew public attention to the absolute necessity for creating telegraphic communication between the mother country and her vast dependency.

Submarine telegraphy was still in its infancy. An attempt had been made to form a line *via* Malta, Suez, and the Red Sea, to Bombay. This had proved a failure. Although the Government were saddled for fifty years with an annual payment of 36,000*l.*, not one single message had ever passed. In the face of this costly fiasco they decided to trust no longer to private enterprise, but to take the matter into their own hands, and selected the route by the Persian Gulf in place of the Red Sea. A Turkish line had at this time been recently erected from Constantinople to Baghdad. It was proposed to connect this with India by a submarine line down the Persian Gulf, and thence by a land line along the Mekran coast to Kurachi. This route involved an extension of the Turkish telegraph from Baghdad to Bussorah, and in order to avoid difficulty with the tribal districts through which such a line would

pass, it was proposed as an alternative scheme to make a loop from Baghdad through Teheran to Bushire.

To carry out such a work required not only the consent but the active participation of the Persian Government, and this was a matter of extreme diplomatic delicacy. Colonel Sir Frederick Goldsmid was appointed at the head of a department under which the scheme was to be carried out, and Major Patrick Stewart, R.E., was named as his principal assistant, with Lieutenant Champain under him.

After a year spent in protracted negotiations a convention was concluded under which the Persian Government consented to construct the Baghdad-Teheran-Bushire telegraph themselves, and to permit a single British officer to visit the country for the purpose of instruction as to the best mode of working the line. In June 1862 Major Stewart had to leave Teheran on account of ill-health and went home *via* Russia.

In November 1863, having partly recruited his health, he went to Bombay and laid the cable from Gwadur to Fao, returned to Bombay, and thence went to establish temporary headquarters at Constantinople. He reached that place in the summer of 1864. After this, with the exception of a brief excursion for change of air to Therapia, he remained in Pera until the day of his death. He died on January 16, 1865.

Stewart had not quite attained his thirty-third year. Although so young, and of only fourteen and a half years' service, he was a Lieutenant-Colonel and C.B., and had already attained great distinction.

The following extract from a review of Sir F. Goldsmid's 'Telegraph and Travel' appeared in the 'Geographical Magazine,' 1874, from the pen of Colonel H. Yule, R.E. 'Stewart joined the corps of Bengal Engineers only in 1852, and yet, when he died in 1865, there was no man of whom it was more proud than of him. His early success neither spoiled him nor begot envy in others. His early death left blank, as all who knew his career believed,

an eminent place in English history; perhaps not that, for his name may yet live there as the first to mould the electric telegraph into a weapon of war.'

General George McClellan, in describing his campaign in West Virginia (1861), says: 'In this brief campaign the telegraph was for the first time, I think, constructed as the army advanced, and proved of very great use to us.' That fine soldier was not aware that a young English Engineer in India had anticipated him three years before.

Colonel Goldsmid refers to Stewart as 'an example to be imitated. But it is the Collingwoods rather than the Nelsons that can be held up as examples. Ordinary men might as well aspire to assimilate their features to that eager and winning countenance —like "young Harry's with his beaver up"—that forms the frontispiece and best adornment of this book, as take for a literal pattern that bright and ardent spirit, so rich in manifold gifts of God and in man's favour. His last years of consuming labour were spent on the great task of which this book treats; and there seems something marvellously fitting in the fact that his tomb is beside that central point of the communication, that link between Europe and Asia, that glowing focus of past and future history—Constantinople; whilst a second memorial is dedicated to his name in Galloway, a third at Kurachi.'

[From Major-General Porter's *History of the Corps of Royal Engineers*; Colonel Vibart's *Addiscombe, its Heroes and Men of Note*; the *Geographical Magazine*, October, 1874.]

LIEUTENANT-COLONEL JOSEPH HENRY DYAS

THAT the records of service of many brother officers who have distinguished themselves in various ways are unfortunately incomplete is, we believe, admitted, though there are differences of opinion as to how the want may be best supplied. And as years

pass the difficulty of collecting the necessary information increases, while the survivors, whose knowledge of the careers and interest in them is personal, decrease. Hence it seems desirable, as far as each of us can, to supply the wants and fill up the gaps on the principle of better late than never. These considerations, together with a profound admiration of the man, and great respect for the talent of the master, and a recollection far off, but still lively, of his kindness, patience, and hospitality, inspire the present attempt at a brief sketch of the career of Joseph Henry Dyas.

He came of a good Irish family; his grandfather kept a pack of foxhounds, and his father, Captain Joseph Dyas, of the 51st K.O.L.I., distinguished himself by gallantly leading the forlorn hope at the first Siege of Badajos, and was present at Waterloo. He married, first, Miss Ridgeway, aunt of Sir West Ridgeway, Governor of Ceylon, and second, Miss Bayley, niece of Mr. Butterworth Bayley, formerly a well-known director of the East India Company.

Joseph Henry, the subject of this notice, was the eldest son of the first wife, and was born at Annfield, a house in co. Kildare, about eight miles from Naas, on April 7, 1824. His father, having been appointed to the constabulary, was so constantly moving about that after their mother's death the children were sent to live with an uncle in co. Wicklow. Here, at the early age of eight, his first attempt at irrigation was made with disastrous results, for he flooded the garden by ingeniously damming a stream which ran through it, and roused his uncle's wrath.

He was sent to school first at Delgany and afterwards at Dungannon (his father at this time being resident magistrate for Antrim), and it is worth recording that the celebrated John Nicholson, who was some sixteen months older, was his schoolfellow at both places, where Dyas gained many prizes and was greatly praised by his teachers. Having got a cadetship from Mr. Butterworth Bayley, he went to Addiscombe, where, after a

narrow escape at the entrance examination, he passed first, and was appointed to the Bengal Engineers. He spent the usual time at Chatham, and went to India in 1845. His mind being always busy, he became anxious to learn the sailing of a ship; so on the voyage out he asked the captain to be allowed to serve as a common sailor. Permission was granted and he worked his way out; not without results one of which might easily have been fatal, for when hauling on a rope an accident happened and the sailors let go, but Dyas held on and was swung up high over the sea. Six months after arrival at Calcutta he was sent up country to join Sir Hugh Gough's army, then before Sobraon. He was just too late for the battle, but heard the guns, and on arrival at Ferozepore with his companions, Glover and Ralph Young,[1] had difficulty in getting shelter, as nearly every house was full of wounded men. Dyas accompanied the army to Lahore, and from that time for many years his service is chiefly identified with the Punjab.

At first, after the entry to Lahore, the administration of Runjit Singh's dominions was carried on through various chiefs or Sirdars by an English Resident, assisted by many officers. Naturally among a turbulent and warlike people disturbances arose and had to be forcibly quelled. The chief difficulty, perhaps, was in respect to the transfer of Cashmere, which the Sikh Governor resisted, but there were other troubles of a similar sort. Thus the fort of Kangra was held by its commandant in spite of orders from the Durbar, and a force was despatched for its reduction. Dyas, who was in command of the 10th Company of Sappers making roads in the neighbourhood, joined the troops in March 1846.

After the fort was taken he was appointed Assistant Superintendent of the Western Jumna Canal, and in January 1850 his services were placed at the disposal of Lieutenant-Colonel Robert Napier,[2] Civil Engineer in the Punjab, in order that he might

[1] *Royal Engineers' Journal*, January 1, 1898.

[2] Afterwards Lord Napier of Magdala.

prepare the project for the Bari Doab Canal, the great work of his life.

Assisted by an able and energetic staff, among whom, as they belonged to the corps, Lieutenants C. S. Paton and J. Crofton [1] may be named, work was at once commenced and pushed forward in spite of serious drawbacks, not the least of which was the absence of maps or surveys on which the features of the country were sufficiently shown. The deficiency could not be fully supplied for want of time, though much was done; so the project had to be based on imperfect data, a fact to which he drew attention in his remarkable report submitted in December 1850. The thought and judgment with which it was prepared elicited Napier's unstinted commendation.

Time and experience showed that modifications were required, and the necessary revision was made by Lieutenant Crofton, superintendent of the canal, and forwarded to R. Temple, Esq.,[2] Secretary to the Chief Commissioner, Punjab, by Lieutenant Dyas, Director of Canals, in August 1856. But much work had meantime been done, and great changes had taken place all along the line of the canal, notably at Madhopore, where the water is taken from the river Ravee. In 1850 it was an obscure and unknown village; before 1857 it was a flourishing station, having excellent houses for Europeans, with gardens, roads, a church, a racket court, and workshops on a great scale. No more attractive place existed in the plains of the Punjab. Situated on the left bank of the river, as high above it as the cliffs at Ramsgate are over the sea, the place was healthy and the scenery is beautiful. Up the river a splendid panorama of the Himalayan snows is to be seen; across the river are wooded hills in the territory of Jammu and Cashmere, a relief to eyes weary of the brown and dusty monotony of the plains. The place and the works below had sprung up under Dyas's care, and he was devotedly attached to them; when

[1] Afterwards Lieutenant-General Crofton.

[2] Afterwards Sir Richard Temple, Bart., G.C.S.I.

called away years afterwards to fill the highest position in the Irrigation Department of the North-Western Provinces, he left Madhopore with deep regret.

Though situated on a remote frontier, far from the active centres of disaffection, the effects of the Mutiny of 1857 were severely felt, chiefly perhaps because expenditure had at all hazards to be curtailed, but greatly, too, because of uncertainty whether the flame would spread to those parts, and, as that became unlikely, by reason of the despatch of the sturdy labourers (Muzbi Sikhs) who were formed into a regiment of Pioneers and sent to Delhi. Dyas, we believe, wished to go with them, but he could not be spared, and the men marched south under Lieutenant H. W. Gulliver, B.E., then employed on the canal works. They did admirable service, and formed the nucleus of the 32nd Punjab Pioneers.

Letters written at that time by an able and observant man have a value so special that no excuse is required for quoting extracts. To his sister, Mrs. Pollock, he writes on June 28, 1857 :—

'We are still all right in the Punjab, and a large number of new levies have been raised from Punjabees of all sorts, chiefly Sikhs and wild frontier men—Afridis and others. We have not been idle here. On the 19th inst. I received orders to raise three companies of Pioneers from among the Muzbis (low-caste Sikhs) employed on the canal works. On the evening of the 21st they were started off for Delhi by forced marches. They reached Fullour[1] (on the Sutlej) on the morning of the 26th. That, I think, is pretty quick work, and it shows how readily the Punjabees come forward. The credit is, of course, due to the men under whom they were employed, and who had great influence with them. Home[2] (of ours) was the man.' He goes

[1] 'Fullour: Phillaur, town in Jálandhar district, on the right bank of the Sutlej, between Ludhiána and the town of Jálandhar. It has a fort, which commands the passage of the river.'—*Imp. Gazetteer.*

[2] Lieutenant Duncan Home, V.C., whose services at the destruction of the Cashmere Gate of Delhi, and afterwards at Malagurh, where he was killed, are matters of history.

on to denounce the over-centralisation, which had caused much of the mischief, and adds: 'John Nicholson (you may remember his people in Delgany years ago), who was at school with me at Holywell, and afterwards at Dungannon, has been made a Brigadier-General, and commands the Punjab movable column. I expect they are going down to Delhi. He disarmed two Native Infantry regiments on the 25th at Fullour (33rd and 35th) as a precautionary measure. He is a fellow, that!'

As it happened, Dyas, soon after the preceding letter was written, renewed acquaintance with his old schoolfellow. General Crofton writes: 'On July 12, 1857, a note came to Dyas from Goordaspoor from the Deputy Commissioner, Mr. Nasmyth (as well as I recollect), saying that he wanted some one who was acquainted with the country about Trimmoo Ghat, on the Ravee, where the mutineers from Seealkot were crossing; so Dyas and I rode down *that afternoon* and reached Goordaspoor at sunset, and found that the rebels had been beaten by General Nicholson's force at noon that day, and the force had returned to camp at Goordaspoor. I returned to Madhopoor next morning, but Dyas stayed on till the final dispersion of the few rebels left near Trimmoo on the 16th, at which I believe he was present; he returned next day (17th) to Madhopoor.'

Dyas's next letter to Mrs. Pollock is dated July 28, 1857. He remarks: 'There is no doubt that the Punjab has saved India. Had the Sikhs joined the mutineers, we should have been "up a tree" regularly, though, of course, the troops from home would soon have retaken the country. I think the Sikhs will stand by us, although our regiment (of Loodhiana) went against us at Benares on June 4; but there must have been a lot of Poorbeas in that regiment, and Soorut Singh—a Sikh prisoner!—at Benares behaved in the most noble manner, saving the Treasury and the lives of some officers. . . . Goolab Singh[1] stands by us, and sends

[1] Maharajah of Cashmere and Jammu; one of the famous brothers, the most able and powerful men at the court of Runjit Singh.

troops to help us; so does the Nepal Rajah.' Dyas then describes meeting Nicholson, and says: 'On the 16th I had the satisfaction of seeing them (the mutineers) finally polished off by him; he managed the whole affair most beautifully. No loss to us but four men wounded and four horses killed. I had a good deal of conversation with Nicholson, as he very kindly put me up in his tent and fed me. He is a splendid feilow, and I wish we had a few more like him. . . . The Punjab is now supplying the army at Delhi (with men and money), but it can't do that very long—and then——. Orders have been issued by Sir J. Lawrence to put every one in arrears of pay for three months, so you may imagine we may soon be hard up. We all hope for the best, and if people at home only *do their duty* by us in pushing out men and money with the *utmost expedition* all will go well. If they don't, India and all of us are lost. Is it not strange that there should be simultaneous massacres of Europeans all over the world now—China, Borneo, Hindoostan, South Seas, North America? How many more? There is something in this surely.'

The next letter is dated September 17, 1857, and announces the storming of Delhi and Nicholson dangerously wounded. Severe strictures are passed on the incapacity of most of the governments in India, and of the apathy or ignorance of the crisis displayed in England by not sending out soldiers overland. 'The Punjab Government is the only one in the whole of India that has shown a particle of sense, always excepting Sir H. Lawrence, the first and best of Punjabees.' That fairly represented feeling at the time, and accounted for a certain pride and distinction cherished for many a day by every officer who was fortunate enough to serve in that province.

Dyas was promoted to be Captain on August 11, 1857; but the Mutiny medal was not obtained till after his death. He remained at Madhopore in charge of the Punjab canals, his chief concern being the Bari Doab Canal, for which money and labour

became more available as the country recovered from the Mutiny. On April 11, 1859, water was admitted without elaborate ceremony, the Punjab Government being represented by Mr. (now Sir Richard) Temple, and a beginning was made of irrigation on a large scale under scientific control. The event, a great one, was thus referred to by Lord Canning, then Governor-General of India, through his Secretary, Lieutenant-Colonel Yule[1]:—

'. . . It is with rare satisfaction that the Governor-General in Council turns from the anxieties that have lately weighed so heavily on the Government of India to contemplate the progress of a great work of peace and amelioration.

'The initiation of this enterprise connects itself with the honoured name of Sir Henry Lawrence, and the first rough surveys were made at his instance, under the direction of Sir Robert Napier. . . . First to Captain Dyas on this occasion are, therefore, due the thanks of the Government, in whose estimation he holds so high a place. With eminent sagacity, zeal, and constancy through years of indifferent health, he has directed the work, and his Excellency in Council heartily congratulates him on having been permitted to see, so far, the successful result of his designs and toil. All who have seen the works bear testimony to their excellence. . . .'

The event is thus referred to in a private letter: 'I had the satisfaction of having the canal opened by Mrs. Crofton (you know she is Sir Robert Montgomery's daughter). For the last three weeks before the opening we worked day and night here; we had about 7000 men in reliefs. Little basins of cotton seeds and oil gave a stunning light. There was quite an illumination every night. We had to push on at that pace in consequence of Crofton having to go on April 11 at rather short notice. Neither Sr Robert Montgomery nor Mr. Macleod, unluckily, was able to be present. . . .'

[1] The late Sir Henry Yule, C.B. K.C.S.I., author of *Marco Polo* and other works.

In 1859 Dyas obtained leave from India, some of which he spent in Rome and Florence studying architecture. In August 1860 he married Catherine Bailey, and early in 1861 they went to India, travelling part of the way in company with his old chief, Colonel Sir R. Napier, who was returning from China.

Dyas went back to Madhopore and resumed charge of the Punjab canals, which position he held till 1864; in July of that year he became Lieutenant-Colonel, and later on he was transferred as Chief Engineer to the North-West Provinces. He did not desire the change, though it was promotion; but in the new place he worked as before, and the loss to one province was gain to another. But not to him, for he became Joint Secretary to the Local Government as well as Chief Engineer, and he had little liking for office work, grudging every moment not spent on engineering projects.

Overwork undermined a naturally good constitution, and in 1867 his doctor said that he must rest; but he would not apply for leave because there were arrears in office. Illness became acute and he suffered greatly, bearing all with incredible patience; he was somewhat cheered by an appreciative letter from the Hon. Sir Edmund Drummond,[1] who assured him that every endeavour would be made to get Major H. A. Brownlow to fill his place if he went on leave; but that was not to be, for a fortnight later, on March 4, 1868, the end came and the weary was at rest. He was buried at Delhi, next to John Nicholson's grave, the spot having been chosen by Mrs. Dyas with a true sense of what was appropriate and what would have been his wish.

There were many expressions, public and private, of regret for the loss of this able servant of the State. Sir E. Drummond wrote to say that it might be acceptable to Mrs. Dyas 'to have my assurance, as the late head of the Government, of how very high your husband's character stood as the responsible adviser of Government and head of the Irrigation Department in these pro-

[1] Son of Viscount Strathallan and Lieutenant-Governor North-West Provinces.

vinces. He was a most able, zealous, and conscientious servant of Government, and one in whom I had the greatest confidence. . . .'

Lord Napier of Magdala, writing to Colonel (now Sir Allen) Johnson, said: 'I am compelled by every feeling of duty and justice to bear testimony to the merits of my late brother officer and Punjab *élève*, J. Dyas. I have rarely met his equal in talent in his special line, the Canal Department, and never his superior in devotion to his duty and the profession which he loved. I believe he fell a sacrifice to his devotion and his work, in which he persevered, notwithstanding that a wasting illness with cruel pertinacity constantly attended him.'

Major J. G. Medley, Principal of the Thomason College, Roorkee, of which Lieutenant-Colonel Dyas was a visitor, issued a notice of his death, in which the loss of 'a public servant of rare ability and devotion,' . . . 'who has sacrificed his life to an overzealous discharge of his duties,' is deplored. And the 'Pioneer,' the chief newspaper in Upper India, in an appreciative article, remarked: 'His great natural abilities, improved by careful study and accurate observation, placed him in the very foremost rank of our Indian hydraulic engineers. . . . Guileless and single-minded himself, out of the abundance of his heart flowed pure and loving thoughts; and no man ever heard "Joe Dyas" speak ill of his neighbour, or judge an action harshly. . . . Such men should not pass away unheeded from amongst us, and their bright example should serve to light others along the same path of self-sacrificing duty and love.'

Thirty-two years have passed since the writer of this sketch saw Dyas, and therefore recollection may not improbably be in fault. The impression left as to his appearance in the Madhopore days is that he was over middle height, say 5 feet 9½ inches or 5 feet 10 inches, well and strongly made, with keen features, fair sandy hair, and a very pleasant expression. He was shy to a fault of those in high places, preferring infinitely a remote small

station on his pet canal to living at Lahore and posing as the head of a department; indeed, so strong did the feeling become, not only on his part but shared by his staff, that when the Lahore Government and its chief officers made tours near his headquarters it was not unlikely that he found his presence was urgently required in some remote corner. This was a pity, no doubt; it was partly constitutional, and partly resulted from long seclusion at Madhopore, where for many years a lady was seldom seen, and the dress of the band of canal engineers was of the simplest, a Norfolk jacket of homespun, open for undress, and with the band buttoned for full dress, the rest of the garments being of white drill or homespun, according to the season of the year.

A marked feature in Dyas's mind was the faculty of invention. He obtained medals at exhibitions for a self-registering rain gauge and for the model of a vertical fall for canals; he also was engaged in designing a water-meter which would register the volume used for irrigation, and in smaller matters he made an arrangement whereby the pages of his music-book were turned by a hand with brass fingers worked by a treadle whilst he played the concertina.

Dyas's son James is now (January, 1899) Senior Captain of the 1st Battalion of the Royal Warwickshire Regiment; he has passed the Staff College, and served in the campaign under Lord Kitchener which ended with the Battle of Omdurman, thus worthily following grandfather and father in the profession of arms.

[From the *Royal Engineers' Journal*, by Major W. Broadfoot.]

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FIFTH PERIOD: 1870–1890

The War in Afghanistan, 1878–80—Lord Napier of Magdala appointed Field-Marshal—Death of Lord Napier in 1890.

Biographical Notices of Field-Marshal Lord Napier of Magdala; Major-General W. W. Greathed, C.B.; Lieutenant-General W. A. Crommelin, C.B.; Colonel D. G. Robinson; Colonel Sir Henry Yule, K.C.S.I.; Captain James Palladio Basevi; Colonel Sir John Bateman-Champain, K.C.M.G.; Captain James Dundas, V.C.; Major W. H. Pierson; Colonel David Ward; and Major John Eckford.

In 1878 a small expedition was sent against the Jowakis, in which Major Beresford Lovett (afterwards Major-General Lovett, C.B., C.S.I.) was present.

The long war in Afghanistan of 1878–80 engaged the services of nineteen officers of the Bengal Engineers, viz. Major-General F. R. Maunsell; Colonels R. De Bourbel, Æneas Perkins; Lieutenant-Colonels D. Limond, W. Hichens, J. Browne (Political Officer), O. St. John (employed as Political Officer), E. T. Thackeray, Lovett, R. Blair; Majors C. N. Judge, G. S. Hills, J. B. Holmes; Captains Dundas, Tickell, Alves, G. Strahan, C. Strahan, and Heaviside. In the first phase of the War (1878–79), Major-General Maunsell was the Commanding Royal Engineer with the Khyber Force; Colonel Perkins with the Koorum Field Force, and Colonel Sankey, of the Madras Engineers (now Sir Richard Sankey), was with the Kandahar column. A strong contingent of officers was with each of these columns as Field and Survey Engineers, in addition to those who were with the companies of Sappers.

November 20, 1878, had been named as the last day on which a reply would be received to the ultimatum sent to the Ameer on

the 2nd of that month. This date having been reached without the arrival of any communication, orders were given to advance from all three points. The Peshawur column, commanded by Lieutenant-General Sir S. J. Brown, promptly captured the fort of Ali Musjid, at the entrance of the Khyber Pass, and pushed forward to Jellalabad, and thence as far as Gundamuk. The Kuram Valley force, commanded by Major-General Sir Frederick Roberts, seized the Peiwar, Kotal, and Shutar Gurdan passes after a severe fight; while the Quetta column, commanded by Lieutenant-General Sir Donald Stewart, advanced to Kandahar. This city they occupied, and afterwards proceeded as far as the River Helmund in one direction and Khelat-i-Ghilzai in the other. The Ameer, finding himself foiled at all points, fled from Kabul and died almost immediately afterwards, leaving his son Yakoob Khan to succeed him. Yakoob entered into negotiations with the invaders, the result of which was the Treaty of Gundamuk, in virtue of which a Resident on the part of the Indian Government was to be admitted into Kabul. Major Cavagnari was appointed to the post, and was received with due honour by the new Ameer. He took up his residence in the city with a suitable escort, and the invading columns retired within the limits of the British frontier.

A detailed account of the war is given in Major-General Porter's 'History of the Corps of Royal Engineers.' Major-General Maunsell, C.R.E., of the Peshawur Field Force, issued an Order on the breaking up of the Brigade, in which he says:—

'The operations in which the Brigade has been employed have not been such as to afford much opportunity for special distinction, but some of them have been arduous and of much interest and value as experience. The rafting operations from Jellalabad to Dakka deserve special mention; about 1000 tons of stores besides men were thus sent in ten days, a work which with the existing land transport would have taken many weeks; an important political object was gained, and loss, or at least injury, to

escorts was saved. This has been a remarkable operation, and its success has been greatly due to the energy and practical experience with such work, and with the people, of Major Blair, R.E. For this campaign Colonel Sankey and Lieutenant-Colonel Æneas Perkins obtained the C.B., and Lieutenant-Colonel James Browne the C.S.I. Lieutenant-Colonels W. Hichens, James Browne, and Major Blair were mentioned in despatches.

After the murder of the Envoy, Sir Louis Cavagnari, and his escort on September 3, 1879, orders were immediately issued for a new advance upon Kabul, and for the retention of Kandahar, to which place the troops that had retired were to return. It was decided that the movement on Kabul should be made by the Kuram column under Sir Frederick Roberts, and that, on reaching that place, he should make connection with the Khyber force under General Bright.

The Kuram column at this time had Lieutenant-Colonel Æneas Perkins as its Commanding Royal Engineer, with the 7th Company Bengal Sappers. In the Khyber Division, Lieutenant-Colonel Limond was Commanding Royal Engineer with the 2nd, 3rd, 5th, and 6th companies of Bengal Sappers under the command of Major Thackeray, V.C.

In the Kandahar field force under Lieutenant-General Sir Donald Stewart, Lieutenant-Colonel W. Hichens was Commanding Royal Engineer, with Captain Larminie as his Brigade-Major. The 4th and 10th companies Bengal Sappers were with this column, and in reserve on the line between Quetta and Sukkur were the 2nd, 3rd, 4th, and 5th companies Bombay Sappers. The A, C, and I companies Madras Sappers were ordered to remove from their respective stations at Bangalore and Rangoon to join the column under Roberts, where they were to be employed on the line of communication. They were commanded by Lieutenant-Colonel Thompson, Madras Engineers. General Roberts was at Simla when the news of the murder of the Envoy arrived, and he at once hurried to Kuram to organise his troops for the advance. On September 12 he was at

Ali Khel and started his forward movement on the following day. The column consisted of about 6000 men, and with this strength the advance to Kabul was accomplished, the Battle of Charasiab having been fought on the road, and the Sherpur cantonments outside the city reached on October 8. Here the Royal Engineers found ample scope for their energies. The new line of communication through the Khyber was now adopted, and that by the Shutar Gurdan, which had been most precarious, was abandoned.

The Bengal Sappers under Major Thackeray were echeloned on this line and employed in improving roads, building forts and huts, and establishing telegraphic communication. This work was much impeded by frequent incursions of the enemy. Meanwhile much fighting had taken place around Kabul, ending in General Roberts being obliged to retire within the Sherpur cantonments on December 14. Entrenchments were hastily commenced to strengthen the position against the overwhelming force of the enemy.

The Sherpur cantonments were fortified with emplacements for guns at intervals. Garden walls and villages dangerously near the cantonment were blown down and levelled, and it was considered necessary to clear completely 800 yards all round the cantonment enclosure.

On December 23 the enemy, who had previously been making desultory attacks on portions of the encampment, delivered their grand assault. This was successfully resisted and a counter-attack made, which resulted in the dispersion of the Afghans with considerable slaughter.

'At the same time some Engineers were sent out to blow up the towers of one of the neighbouring villages on the south front of the cantonments; a duty successfully carried out, but unfortunately with the loss of two officers, Captain Dundas, R.E., V.C., and Lieutenant Nugent, R.E., owing to an untimely explosion caused by a defective fuse.' [1]

[1] Official Report.

On the same day a brisk attack was made at Jugdulluk Kotul on the Khyber line by the Afghans. Major Thackeray had been left in command at this post. He had under him the 2nd and 3rd companies Bengal Sappers, with a detachment seventy strong of the 24th Punjab Native Infantry. The other officers present, who were all Engineers, were Lieutenant Blunt, in charge of signalling, and Lieutenants Dove, Randolph, J. C. Campbell, and Gordon.

The enemy, reported to be about 3000 strong, succeeded in approaching to a distance of 150 yards, and kept up a heavy fire which was replied to vigorously by the Sappers and Punjab Infantry. The east face of the fort was manned by the 2nd company Sappers under Lieutenant Campbell, and by the 24th Punjab Native Infantry.

The enemy kept well under cover, behind brushwood and rocks, and received reinforcements along the ridge. They also opened fire from a hill about 200 yards in front of the fort and from the higher spurs beyond, which rendered it impossible for the garrison to reply to the former without being exposed to a plunging fire from the upper spurs. . . . Major Thackeray was severely wounded about this time, and his native orderly Sepoy, Sultan Ali, was killed by his side. The south face was then manned and the 3rd company of Sappers under Lieutenant Randolph, R.E., was then posted in the flank bastion. . . . Several times after much drumming and shouting the enemy showed in force on the crest of a spur with the intention of assaulting, but the men being kept well in hand by Lieutenant Dove, R.E., near the expected points of assault, and the light being dim, the men escaped without casualties. This continued until about 10 P.M., when the assailants retired. In this affair three men were killed and one wounded, besides Major Thackeray.

After the unsuccessful attack by the Afghans on Kabul on December 23 the Sherpur cantonment was converted into a strongly entrenched camp; three bridges were thrown across the Kabul River, and all the main roads made passable for artillery.

The Commanding Engineer (Colonel Æneas Perkins) had under his direction the completion of the following works :—ten forts, fifteen detached works, three large trestle bridges, numerous small ones, 4000 yards of defence, forty-five miles of road, two posts, also quarters for 8000 men.

On the Khyber line the most important work was the construction of the road through the Jugdulluk range. This was carried out under the superintendence of Lieutenant-Colonel Blair, R.E., and cost about 300*l.* per mile.

As soon as the news of the disaster of Maiwand reached Kabul General Stewart ordered Major-General Roberts to proceed immediately to the relief of Kandahar at the head of a picked force. On August 8, 1880, Roberts started from Kabul on his memorable march. The officers of Bengal Engineers with the force were Colonel Æneas Perkins, commanding Royal Engineers, and Captains Tickell, Brackenbury, Call, Nicholson, Spratt; Lieutenants Glennie, the Hon. M. G. Talbot, Longe, Call, Childers, and Onslow, all of the Royal Engineers, also accompanied the force.

The troops numbered 10,000 men, with eighteen mountain guns and 8000 followers. Ghuzni was reached in seven days, being a distance of ninety-eight miles. Khelat-i-Ghilzai, 136 miles further, took another eight days to accomplish; and Kandahar, eighty miles from Khelat-i-Ghilzai, was reached on the morning of August 31, the whole distance of 321 miles being thus accomplished in twenty-three days.

The Battle of Kandahar followed, when the troops of Ayoob Khan were totally defeated and dispersed. The war was now practically over. The new Ameer, Abdul Rahman, was established at Kabul, and the British troops withdrawn within the Indian frontier. Colonels David Limond, W. Hichens, and J. Hills were made Companions of the Bath, and Major O. B, St. John was rewarded with the Companionship of the Star of India. Colonel Thackeray was also subsequently made a C.B. Majors G. S. Hills,

R. Thompson, W. North, R. G. Woodthorpe, and E. P. Leach, V.C., were promoted to be Lieutenant-Colonels, and Captains W. I. Heaviside, C. Strahan, E. Harvey, M. W. Rogers, E. M. Larminie, T. H. Holditch, W. S. Bissett, W. G. Nicholson, C. F. Call, and L. F. Brown were promoted to be Majors.

In 1881 a small expedition was sent against the Mahsud Wuziris, in which Major W. H. Pierson was the Commanding Royal Engineer. A short biographical notice of this talented and lamented officer, who lost his life in consequence of the exposure he underwent during the campaign, will be found at the end of this volume. In 1882 Lieutenant-Colonel (afterwards Sir James) Browne was in command of the Indian Engineers and Sappers that joined the Egyptian Expeditionary Force. For his services in this campaign Colonel Browne was rewarded with the C.B., and also received the Order of Osmanieh and the Bronze Star and Medal.

A small expedition to the Zhob Valley in 1884, with which Colonel Tomkins, C.I.E., was present, and another to Hazara in 1888, in which Colonel Lovett, C.S.I., was Commanding Engineer, complete the campaigns of this period in which the officers of the Bengal Engineers were employed. For his services in Hazara Colonel Lovett received the Companionship of the Bath.

In the Turkish-Russian war of 1877 Lieutenant-Colonel H. Trotter, C.B., was appointed Military Attaché to our Embassy to Constantinople, and accompanied the Turkish armies throughout the campaign in Asia Minor. He was afterwards appointed H.M.'s Consul for Kurdistan, and subsequently Consul-General for Syria.

FIELD-MARSHAL LORD NAPIER OF MAGDALA, G.C.B., G.C.S.I.

ROBERT CORNELIS NAPIER, son of Major C. F. Napier, R.A., was born in Ceylon, December 6, 1810. He joined Addiscombe

February 4, 1825, and obtained his commission December 15, 1826, when just over sixteen. He became a First Lieutenant a few months later, owing to an augmentation of the corps. After the usual residence at the Royal Engineer Establishment at Chatham, he proceeded to India, where he landed in November 1828.

On April 21, 1831, he was appointed an Assistant on the Doab Canal, and served in that capacity for five years. 'Indefatigable at work he was soon conspicuous for the devotion to his duty which has been the characteristic of his life, and this early brought him to notice, and led to his being selected for the then comparatively new field of Indian irrigation. Placed on the Great Eastern Jumna Canal, he became the pupil and friend of Proby Cautley, who was soon to develop a new and brilliant school of engineering.' [1]

Here Napier learned those practical lessons of construction which were so valuable to him in later days.

He continued his service in the Jumna Canal branch for five years, when a severe attack of illness, brought on by exposure and overwork, compelled him to take leave of absence. This was extended for a period of three years, during which time he devoted himself to the inspection and study of the various public works then in progress in England, and also of the great industrial establishments of Belgium. Lieutenant Napier returned to India in 1838, and was ordered to Darjeeling, where a new settlement was to be established. Here again he was engaged in very arduous work, and had to endure considerable hardships in a district which was utterly undeveloped.

'Primæval forests containing an undergrowth of all but impenetrable cane jungle, within which the rays of the sun barely made their way, covered what is now the site of one of our most favoured sanatoria, and of the most successful tea plantations, and rendered difficult the progress of Napier through the country, and much more the carrying on of engineering operations. Neverthe-

[1] *Times of India*, April 10, 1876.

less, all difficulties gave way rapidly before the energy of the now experienced and skilful Engineer; and though beset with many obstacles—by desertion among his labourers, who were terrified at the gloomy darkness of the jungle and the sickness amongst their comrades—important results were soon secured. Roads were opened, sites cleared, and a foundation laid for the settlement.'[1]

It was whilst in this employment that he completed the organisation of the local corps of Sebundy Sappers, which had been originally established by Gilmore. In the scarcity of ordinary labourers these men were found most useful in carrying out the works rendered necessary for the infant settlement. In an article which he contributed to Yule's 'Glossary of Anglo-Indian Words,' under the heading of 'Sebundy Sappers,' he says:—

'The Sebundy Sappers were a local corps designed to furnish a body of labourers fit for mountain work. They were armed and expected to fight when necessary. After a time, when labour became plentiful, they were disbanded.'

Napier was promoted Captain in 1841, and in the following year appointed Executive Engineer of the Sirhind Division, where he was engaged in the construction of a new cantonment at Umballa, to replace that at Kurnal, which it was intended to abandon, owing to the mortality among the troops.

The admirable manner in which the cantonment was laid out, the sites selected for the barracks, and the method adopted of building the barracks in échelon, so as to be fully open to the prevailing winds, is still borne witness to by the state of the Umballa cantonment, which is one of the most healthy and desirable stations in Northern India. Napier remained at this post until the outbreak of the first Sikh War at the end of 1845.

He was summoned for service in this campaign, and he was in time, by a sixty-mile ride, to be present at the Battle of Moodkee. In this, as well as Ferozeshah on December 21, he acted as Chief Engineer, and at the latter was severely wounded. He had two

[1] *Times of India*, April 10, 1876.

horses shot under him in these engagements. At the Battle of Sobraon he was engaged as Brigade-Major of Engineers, and served in the subsequent advance on Lahore. For his services in the campaign he was mentioned in despatches, and promoted to a brevet majority.

Early in May a force was detailed, under the command of Brigadier-General Wheeler, for the reduction of the mountain fortress of Kote Kangra. Colonel H. Smith had been appointed Chief Engineer, but was not able to undertake the duty from illness. Major Napier was therefore selected to fill the post. In this operation the principal difficulty was the construction of a road for the transit of the artillery (thirty-three guns and mortars).

The labour necessary to carry out this work, which at any time would have been one of extreme difficulty, was greatly enhanced by the torrents of rain which fell almost unceasingly. Napier, however, persevered, and, being well supported by his subordinates, achieved the task which was by many considered an impossibility. The presence of the artillery, which the garrison of the fort had not expected, led them to capitulate without a blow.

'This was no small achievement: the crossing of the rapid Beas with but little means, and transporting of the material over hills and torrents, one of which in one march had to be crossed twenty-four times. Wheeler himself claimed but little share in the achievement, but expressed his gratitude to Napier and those officers and men of the Sappers to whose unremitting labours he owed the success of the undertaking.'[1]

On the establishment of the Lahore Regency, Major Napier was appointed Engineer to the Durbar. In this position he commenced that grand scheme of public works which he afterwards so successfully completed. While thus engaged the second Sikh War broke out, after the murder of Vans Agnew and Anderson. The brilliant exploits of Lieutenant Herbert Edwardes in this crisis are a matter of history, and when he had driven the revolted Sikh army behind the walls of Mooltan he wrote :—

[1] *Times of India*

'I would suggest that the siege be commenced at once. We are enough of us in all conscience. All we require is a few heavy guns, as many Sappers and Miners as you can spare, and Major Napier to plan our operations.' [1]

This appeal was for a long time unanswered. The military authorities considered that it would be 'impolitic to entrust British ordnance to irregular levies,' and that 'a British army must accompany British guns.' The equipment of this, the collection of transport, commissariat, &c., prevented the siege from being opened till September.[2] The result of the delay was that Moolraj had ample time to prepare for the coming storm.

When assistance was sent it consisted of a division under Major-General Whish, to which Napier was attached as Chief Engineer. The first portion of the siege operations, which commenced early in September, met with no success, and ended in the besiegers being themselves attacked. On this occasion Van Cortland's Sikh Horse Artillery suffered considerably.

'Napier, to encourage the gunners, laid and helped to work the guns himself.' [3]

Shortly afterwards Napier was wounded in an attack on the suburbs, and was disabled for some weeks. During this interval the siege was suspended awaiting reinforcements, as Shere Singh had gone over to the enemy with 10,000 men. The army fell back and encamped beyond the canal on the west of Mooltan.

The Sikhs, after a considerable period of inactivity, assumed the offensive, which rendered it necessary to take active measures against them. A flank attack was made, supported by a direct front movement, in which, as Edwardes wrote, 'a mere manœuvre of fine soldiership turned a large army out of a strong entrenchment, and routed them with the loss of five guns, before they even understood the attack. It was the triumph of discipline over an irregular army.'

[1] Edwardes's *Year on the Punjab Frontier*, 1851, vol. ii. p. 485.
[2] *Ibid.* [3] *Times of India.*

This victory prevented any further hostile manifestations, and the army remained undisturbed until the arrival of reinforcements in the form of a Bombay division. With these troops, Colonel Cheape, the Chief Engineer of the Punjab, arrived and took command of the engineering operations.[1]

With the strong force now in front of the city, Cheape found no difficulty in prosecuting the siege.

The suburbs were cleared, breaching batteries established, and on the very day when the assault had been ordered the enemy capitulated and the fortress was surrendered.

On the conclusion of the operations, Whish's division marched to join Lord Gough, and Napier accompanied it.

At the Battle of Gujerat he commanded the Engineers of the right wing, and was with Sir Walter Gilbert in the famous pursuit of the Afghans across the Punjab to the Khyber. For his services at the Siege of Mooltan and at Gujerat he received the brevet of Lieutenant-Colonel.

On the annexation of the Punjab he was appointed Civil Engineer to the Board of Administration, a post which he held for seven years. During this time he initiated and carried out that great system of public works which has done so much to develop the resources of that magnificent province, and to render it one of the most loyal of all our Indian possessions. With regard to his services during those eventful seven years, Lord Dalhousie wrote as follows, on the occasion of his relinquishing the post, in a despatch addressed to the Chief Commissioner of the Punjab, dated October 25, 1854 :—

'Such results could not have been obtained without the presence of abilities and exertions such as call for the grateful recognition of the Government. To all of the officers Colonel Napier, the Chief Engineer, has done full justice. But to Colonel Napier himself the Governor-General in Council is anxious to render the honour that is due. For several years the Governor-

[1] See memoir of General Sir John Cheape, G.C.B.

General has been in close relations of business with Colonel Napier, and has seen and marked the deep devotion with which he has laboured in the many and various duties of his important office. The report before Government shows his success in one branch only of the great department with whose conduct he is charged, but it has been equally conspicuous in all. Whatever may be the credit due to those whose efforts have been directed to the physical improvement of the Punjab, a principal share of that credit is justly due to Lieutenant-Colonel Napier, whose professional abilities, unwearied industry, and judicious guidance have contributed so largely to the material result which has happily been attained.' Several minor military services were rendered by Napier during this interval of time. In December 1852 he joined Colonel Mackeson's expedition against the tribes of the Black Mountain. In reporting the operations Colonel Mackeson wrote:—

'My obligations to Colonel Napier are greater than I can express, for the steady and skilful manner in which he brought his column through many difficulties of ground and determined opposition by the enemy.'

In November 1853 Lieutenant-Colonel Napier took part in the expedition under Colonel S. B. Boileau against the Jowaki Afridis of the Bori Valley, on which occasion the Chief Commissioner (John Lawrence) reported to the Governor-General 'that the success of the expedition was mainly due to the exertions and ability of Lieutenant-Colonel Napier, the Chief Engineer of the Punjab, and Major Edwardes.'

In the autumn of 1856 Napier went home on leave, but was already on his way back to India when the news of the Mutiny met him at Aden. He was appointed Chief Engineer of Bengal, but shortly afterwards was gazetted as Military Secretary and Chief of the Adjutant-General's Department to Sir James Outram, whom he immediately joined on his way to Allahabad. He took part in the three actions fought by the combined force of

Outram and Havelock, on the way to Lucknow, and entered with them. The following extract from Sir James Outram's despatch of November 25, 1857, refers specially to Napier:—

'But skilful and courageous as have been the engineering operations, and glorious the behaviour of the troops, their success has been in no small degree promoted by the incessant and self-denying devotion of Colonel Napier, who has never been many hours absent by day or night from any one of the points of operation; whose valuable advice has ever been readily tendered, and gratefully accepted by the executive officers; whose earnestness and kindly cordiality have stimulated and encouraged all ranks and grades amidst their harassing difficulties and dangerous labours.'

It must be remembered that at this time the position of Colonel Napier with regard to his brother Engineers was somewhat peculiar. He was the senior officer of that branch of the service present; but being on staff employment, he was not the Chief Engineer, that post being held by Captain Crommelin.

On November 17 the second Relief of Lucknow was effected by Sir Colin Campbell, and on that day, when accompanying Outram and Havelock to meet Sir Colin Campbell, Napier was severely wounded. He went with the Commander-in-Chief to Cawnpore, where he was placed in hospital. He received the C.B. for his services at Lucknow.

It was about this time that the outline of the proposed operations for the reduction of Lucknow was drawn up. In a Memorandum for Lord Canning, dated December 22, 1857, Sir Colin writes:—

'Colonel Napier has given the deliberate opinion, in which I coincide as regards numbers, that 20,000 men are necessary for the first operation of subduing the city. That having been performed, it will be necessary to leave a garrison in occupation of at least 10,000 men, viz. 6000 in the city and 4000 in a chain of posts to the Cawnpore roads, until the whole province shall

have been conquered, and the rebels driven out of their last stronghold.'[1]

Early in January 1858 Napier returned to his post as Chief of the Staff to Sir James Outram at the Alumbagh, where that general had been left with a force to hold the ground pending the return of Sir Colin. While there he soon formed the opinion that the attack should be made on the east side, accompanied by a flank movement on the north across the river, which would take the enemy's line in reverse. He therefore devoted the interval between his arrival at the Alumbagh and that of Sir Colin with his force to a careful inspection of the ground on both sides of the river. Some time afterwards he gave the following reasons for his views in the 'Royal Engineers' Professional Papers' (vol. x.):—

'The east side offered, first, the smallest front, and was therefore the more easily enveloped by our attack; secondly, ground for planting our artillery, which was wanting on the west side; thirdly, it gave also the shortest approach to the Kaiser Bagh, a place to which the rebels attached the greatest importance; more than all, we knew the east side, and were little acquainted with the west.'

Sir Colin summoned Napier back to Cawnpore, where everything was decided in accordance with his views, and on the 10th he was appointed to the command of the Engineer Brigade.

The city of Lucknow being upwards of twenty miles in circumference, it was utterly impossible to attempt an investment or a siege under ordinary conditions. The town is bounded on the north by the Goomtee, and on the east by a canal which runs northward from that river. About halfway between the canal and the Residency stands the king's palace—the Kaiser Bagh. This was the citadel of defence, and was covered by three lines.

The first was a flanked rampart on the river side of the canal, which formed a wet ditch to it. The second, with a circular trace,

[1] *Life of Lord Clyde*, vol. ii. p. 68.

enclosed a large building called the Mess House, and another called the Motee Mahal, while the third consisted of a line of rampart to the north of the citadel. The first and second lines rested on the river to their left, and terminated to their right in the town itself, where it was impossible for an enemy to advance or turn them. Indeed, the only possible attack was from the east, supported by a corresponding advance to the river to take the lines in reverse. In front of the canal, and about a mile from it, was an extensive block of buildings called La Martinière, about five miles from Alumbagh.

On February 28 the Commander-in-Chief moved his army from Bunteera to the Dilkoosha, a large house and park held by the enemy.

From this point a view could be had of the enemy's first line of entrenchments, which appeared very formidable. Almost every house and street had been loopholed. Every outlet had been covered by a work, and on every side were prepared barricades and loopholed parapets. The amount of labour expended on the works by the rebels was enormous. Streets a mile long had almost every house loopholed, and guns pointed from many of them. The bridge had also been ruined.

On the night of March 4 two bridges of casks were constructed by the Engineers and Sappers across the Goomtee, a very troublesome and difficult operation. General Outram with his division, consisting of the Queen's Bays, 9th Lancers, and the Highland Brigade, and other troops, crossed the river on the 6th, and met with little opposition. The remainder of the army was at Dilkoosha, about 1000 yards in rear of La Martinière. Brigadier Franks joined the force about this time with Jung Bahadoor and 4000 Ghoorkas.

The rebels' earthworks on the south side of the river were enfiladed by the guns of Outram's division on the other side of the river. On the 7th the Sepoys made a sharp attack on General Outram, but were repulsed without difficulty, and retired within

their lines, leaving him free to push forward. On March 8 the Martinière was assaulted and captured with small loss, and on the evening of the 9th Sir Colin Campbell was able to advance on the canal line, which had been enfiladed and taken in reverse by the batteries already established by General Outram. He secured the line without loss. The forward movement was now continued, the houses and palaces being used as an approach. In this way the second line was turned to the left. Batteries were then thrown up to break a large block of palaces called the Begum Kotee on the right, which were then stormed and carried.

Thenceforward the Chief Engineer pushed his approaches with the greatest judgment through the enclosures by the aid of the Sappers and heavy guns, the troops immediately occupying the ground, and the mortars being moved from one position to another, as ground was won upon which they could be placed.[1]

At length the third line was turned, and the Kaiser Bagh entered. Supports were quickly thrown in, and the Mess House, the Tara Kotee, the Motee Mahal, the Engine House, and the Chuttur Munzil were rapidly occupied by the troops, while the Engineers devoted their attention to securing their positions towards the south and west. On the 11th the Artillery and Naval Brigade, under Sir William Peel, had battered and breached the Begum Kotee with three 68-pounders. This was then assaulted and carried by our troops, about 500 of the enemy being killed inside. The force under Outram, which had been advanced on the other side of the Goomtee, now recrossed on a bridge of casks, and pushed forwards to capture the Residency. This was the last move, and the enemy abandoned the defences. Still there were detached forts held by desperate bands of natives, and it was not till the 21st that all fighting ceased.

Within less than a week after the recovery of the city, Brigadier-General Napier submitted to the Commander-in-Chief memoranda of the defensive measures by which he considered the

[1] Sir Colin Campbell's Despatch.

control of Lucknow could be secured with a comparatively small garrison. The chief difficulties to be contended with were the absence of any very prominent features of ground, the vast extent of the city, and the impediments to circulation.

The principal points in his project were the creation of three strong fortified posts along the north or river side of Lucknow, and the laying open its almost impenetrable labyrinths by the construction of great roads.

'These works,' said Lord Clyde, 'set free at my disposal 12,000 men.'[1]

By the middle of May Napier had finished his share of the duty, and proceeded to Allahabad. He almost immediately afterwards received instructions to take over the command of the Gwalior force from Sir Hugh Rose, who had been invalided as 'worn out with fatigue and successive sunstrokes.'[2]

Just at this moment the beaten army of Tantia Topee and the Ranee of Jhansi marched down on Gwalior, fought and defeated Scindia, and took possession of the city.

'In short, the rebels, who had fled in the most disorderly and helpless state from Calpee, were now unexpectedly set up with abundance of money, a capital park of artillery, plenty of material of war, and Scindia's army as their allies, the best organised and drilled of all the native levies.'[3]

This news reached Sir Hugh Rose just after his leave had been granted, and he at once telegraphed to Lord Canning that he should not avail himself of it, but march his force on Gwalior. Napier on this, 'with that generosity that always characterised him, told Lord Canning that he would be delighted to serve as second in command.'[4]

He therefore joined Sir Hugh Rose at Bahadurpore, early on the morning of June 16, and took over the command of the Second Brigade, of which, however, only a small portion was present,

[1] *Times of India.* [2] *Record of Services of Lord Strathnairn*, p. 51.
[3] *Ibid.* p. 52. [4] *Ibid.*

most of it having been left at Calpee. While the men breakfasted a reconnaissance was made, and Rose determined on an immediate attack of the cantonments of Morar, distant about four or five miles. The advance was made in two lines, the first of which was under the command of Sir Hugh.

'The second line, under Brigadier-General Napier, was placed in échelon on his left; the left "refused," as the Major-General had heard that the ravines on the left were full of ambuscaded troops, and this formation would enable him rapidly to wheel the whole force to the left if necessary. . . . As the troops advanced the enemy in the ravines were forced to show themselves by Brigadier-General Napier, and a sharp action took place between them and the 71st, who, as usual, behaved admirably, completely beating the enemy with great loss. To General Napier were due Sir Hugh Rose's warmest thanks for his skilful management.'[1]

On June 18 Sir Hugh Rose quitted Morar for Gwalior, leaving Napier to guard that cantonment, and to pursue the enemy on receipt of orders; his brigade having been completed by the arrival of the Calpee garrison on the 17th. Gwalior was captured on the 19th, and instructions were then sent to Napier to carry out the pursuit 'as far and as closely as he could.' He at once assembled his force and started in pursuit of Tantia Topee, who was stated to have with him 12,000 men and twenty-five guns, sending a message to Sir Hugh Rose that he should attack 'whenever and wherever he came up with him.' Following steadily on the enemy's line of march, Napier reached the town of Samowli, about twenty-four miles distant, soon after nightfall. They had halted for supplies and had just moved off. Napier, knowing that he could do nothing with them in the dark, remained where he was, and gave his men some hours' rest, continuing his pursuit early in the morning. Sir Hugh Rose had sent a reinforcement to Napier, fearing that his strength was not sufficient to cope with the army of Tantia Topee, and this arrived at Samowli just as Napier was

[1] *Record of Services of Lord Strathnairn*, p. 53.

preparing to start. As they had made a forced march and required rest, he left them to follow later on. Consequently they took no part in the impending action.

At dawn he, with his advance guard, came up to a short range of low sandhills bordering the plain of Jowra Alipore. In this plain the enemy were drawn up after their night's march, utterly ignorant of his approach. He waited until his force had assembled, and then, forming them behind the ridge, prepared to charge as soon as his artillery had had time to sweep the lines of the rebels. The disproportion between the armies was enormous, and it seemed almost a hopeless task to assail such superior forces, but Napier knew well that his only chance of success was in headlong dash.

At the first symptom of wavering on the part of the enemy from the effects of his guns, he hurled his troops upon their lines, and in a few minutes drove them from their positions. The triumph was complete, they abandoned their camp and train, and took to headlong flight.

Napier's cavalry succeeded in capturing every one of the guns which Tantia Topee had with him, and after continuing the pursuit as long as practicable, and until the fugitives had become utterly disorganised, they returned to camp. Napier marched triumphantly back to Morar, bringing with him the artillery he had recovered.

Thus terminated what Sir Colin Campbell, in a letter to the Duke of Cambridge, called Napier's 'brilliant sequel.'[1]

On June 29 he assumed command of the Gwalior division, Sir Hugh Rose having taken his leave.

When the news of the result of the Central Indian campaign reached England, General Napier received the thanks of Parliament and the honour of the K.C.B.

The country was now clear of any large organised force of rebels, but being full of minor posts small parties continued to

[1] *Life of Lord Clyde*, vol. ii. p. 262.

give trouble, and as it was necessary to prevent their collecting into more formidable bodies, Napier dealt with these cases as they arose by flying columns. Meantime rest and shelter had become imperatively necessary for the troops, exhausted by severe and harassing service at the worst season of the year. Under his personal superyision every effort was made to restore, clean, and drain the wrecked cantonment of Morar, and accommodation for 200 Europeans was provided in the fortress of Gwalior, to which he also transferred his ammunition and supplies, so as to be free to take the field unencumbered should the enemy reappear. Affairs were in this condition when Rajah Maun Singh of Nurwar surprised the strongly fortified town of Powrie, situated eighteen miles west of Sipree and eighty-three miles south-west of Gwalior, which he garrisoned with nearly 4000 men. Brigadier-General Smith, commanding at Sipree, advanced towards Powrie, but found himself unable to capture the place, and applied to Gwalior for reinforcements. Napier started at once with a small body of men and some artillery, and by forced marches reached Smith on August 19. Operations against Powrie commenced on the following day. Whilst his breaching batteries were being constructed, he made some mortars he had brought with him play steadily on the place, after which he opened fire with his guns. The enemy did not wait to be assaulted, but abandoning the fort by night fled southwards. Napier immediately despatched a column in pursuit, which inflicted great loss on the retreating enemy.

In December a new antagonist appeared in the person of Feroze Shah, who, having been driven from Rohilcund and Oude by the restoration of order, decided as a last chance to join his force to that of Tantia Topee.

Sir Robert Napier had thrown out three small columns to intercept his route, and held a fourth in readiness to act under his own command. On December 12 news reached him of Feroze Shah's approach. The opinion at Gwalior was that he would make either for that city or for the district north-west of it. But

Napier thought differently and decided that he would pass through the jungles of the Scinde river, south-west of Gwalior. Accordingly at 2 P.M. he marched with a small column for Dubbra on the Jhansi road. That night he halted at Antri, where at 2 A.M. 'he was roused by an express message from the Political Agent at Gwalior, Macpherson, to the effect that the information he had received led him to believe that the rebels would pass by Gohud, north of Gwalior.'

Therefore, instead of pushing on to Dubbra at once, as planned, Napier despatched messengers for information. At 10 A.M. the answer came that the rebels were burning the dâk bungalow at Dubbra.

'The express from Gwalior had just come in time to baffle the accurate conceptions of Napier's brain, for had it not arrived he would have caught them at the very spot he had selected.'[1]

Napier at once hastened forward, and at Bitowar, on the 14th, learnt that Feroze Shah was only nine miles ahead. Continuing his pursuit through Narwar, he there dropped all his artillery and infantry except thirty-eight of the 71st Highlanders, whom he mounted on baggage camels.

He then proceeded with the utmost speed through the jungle, and struck the enemy's track on the morning of December 17 at Ramnode, where he learnt that the rebels were hourly expected.

'His divination that they would make their way through the jungles of the Scinde river had proved to be perfectly accurate. Feroze Shah . . . had marched on a line almost parallel to that of the English leader, and it was only a little deviation he had made to sack Ramnode which had saved him from attack the previous day. Full of confidence, and utterly ignorant of the arrival of the English, Feroze Shah approached, his army . . . extended on a front of nearly a mile.'[2]

[1] Malleson, vol. iii. pp. 360, 361. [2] *Ibid.* p. 362.

Meanwhile Sir Robert had hastily placed his sick and baggage within Ramnode, and formed his small force of cavalry under cover of some trees, with the mounted Highlanders on the flanks. The force actually engaged consisted only of about 200 cavalry and the thirty-eight Highlanders on camels; but no sooner did the enemy appear than the little body dashed at them, and speedily put them to rout. The loss of the rebels was estimated at 450 killed, of whom 150 were left dead on the field, and 300 killed in the pursuit. The British loss was only sixteen wounded.

At the end of January 1859 Tantia Topee, beaten in the north-west, fled southwards to the Parone jungles, undiscovered by the British. Sir Robert Napier had already recognised 'this tract of country as likely to give trouble.' It consisted of 'a belt of jungle, little known, flanked at each end by a hill fort, with plenty of guns, and garrisons the reverse of friendly towards the English . . . with a population yielding numbers for any plundering occasion.'[1]

This tract he determined to control by destroying the principal fort and clearing roads through the jungle. The fort of Parone having been destroyed by the Royal Engineers, he caused clearings to be cut in different directions through the hills and glens, past the most notorious haunts of the rebels. This policy proved quite successful, and on April 4 Napier was able to report to Lord Clyde:—

'Maun Singh has surrendered just as his last retreats were laid open by the road. . . . Since the days of General Wade the efficacy of roads so applied has not diminished.'

The surrender of Maun Singh led to a still more important result, namely, the capture of Tantia Topee, whose presence in the jungle had hitherto been unsuspected. This was followed by the lapse of the rebellion in Central India. Within a month Napier was recalled to Gwalior by news of the excitement caused there as elsewhere among the Company's European troops, owing

[1] Napier's Despatch, March 27, 1859.

to their summary transfer to the Crown. He took such steps as seemed necessary for the maintenance of order, and the combined kindness and firmness of Lord Clyde and himself calmed the discontent.

He was before long called on to renew his active services, being appointed in January 1860 to take command of the Second Division in the Expeditionary Force about to proceed to China. The whole of the arrangements attending the provision of the necessary equipment, and the preparation of the transports to convey the army, were entrusted to Napier, and he was for upwards of two months busily engaged in this laborious and anxious work. At length all was ready and the troops were embarked. Hong Kong was reached in the middle of April, and after a further delay of two months Napier started, on June 11, in H.M.S. 'Impérieuse' for Tahlien Bay, which had been selected as the rendezvous. Through the non-arrival of the ambassadors who were to accompany the troops, the expedition did not sail for the Peiho till July 26.

The First Division disembarked between August 1 and 3, and seized on the town of Pehtang. The Second Division was landed between August 5 and 7.

The whole country between Pehtang and the forts, as well as the surrounding district, was an extensive mass of mud flat, very tenacious, and except in certain places utterly impassable for troops. It was intersected by numerous canals, and the ordinary traffic was carried on by raised causeways. Reconnaissances were made by Napier, Wolseley, and others, by which it was ascertained that the village of Sin-ho, which was occupied in force by the enemy, could be approached in flank by a circuitous route, where the mud flat was not utterly impracticable. It was therefore ordered that Napier's division should adopt this line, while the First Division and the French should proceed by the causeway which led direct from Pehtang to Sin-ho. This method of advance, although so difficult that it took Napier's force six hours to cover a distance of four

miles, answered the purpose for which it had been designed. The Tartars found themselves taken in flank, and after a brief resistance abandoned the village of Sin-ho and an entrenchment which they had thrown up across the causeway.

'Napier's infantry were speedily employed, his cavalry let loose, and artillery kept going, and though the heavy ground was rendered more difficult for our cavalry by ditches broad and deep whose passages were known to the enemy alone, yet within a quarter of an hour of their advance the Tartar force was everywhere in retreat.' [1]

The ground having been thus cleared, the Allies were in a position to proceed with the attack on the forts. The French had desired that operations should commence on the south side, but Sir Hope Grant was firm in his resolve to seize on the north forts. There is no doubt that in this matter he was supported by Napier, who was strongly of the same opinion. Fortunately the French acceded, though most reluctantly, to the views of the British commanders, restricting their demands to the construction of a bridge across the Peiho.

The operations against the north forts were confided to Napier's Division, and by them carried out to a successful issue.

When Sir Hope Grant advanced on Tientsin he left Napier to complete the occupation of the forts and render their retention secure. When this was accomplished, he and his Division also moved forward on Tientsin, and on him devolved the laborious and important duty of pushing supplies to the front. After the Battle of Chang-kia-Wan, Sir Hope Grant 'sent an express to summon General Napier with as much as could be spared of the Second Division from Tientsin. The order found them ready to move, and General Napier reached headquarters on the 24th, having marched seventy miles in sixty hours, with a supply of ammunition which was much required.' [2]

He was not in time for the Battle of Pah-le-Kao, which was fought

[1] Greathed's *China War of* 1860 (*Blackwood's Magazine*). [2] *Ibid.*

while he was on the road. After the rout of the Chinese under San-ko-lin-sin, the Anglo-French troops marched to Pekin, and took possession of that city on October 12. During the time he was with the Chinese Expedition, Napier twice received the thanks of Parliament. For his services in China he was promoted to the rank of Major-General.

On his return from China he was appointed Military Member of the Supreme Council of India in succession to Sir James Outram, and retained his seat until 1865, when he was appointed Commander-in-Chief of the Bombay Army. Here he had an ample field for the work he loved best, the development of schemes for the benefit of the soldiers, and especially those of the Native Army. Napier was always beloved by his men, and no one more amply deserved that attachment. His every thought and every care was for them, and as head of the Bombay Army he gave ample scope to his views. The consequence was that when, in the autumn of 1867, it was decided to send troops to Abyssinia and to entrust the command to Napier, he had under his hands a weapon he himself had forged, and on the true temper of which he felt sure he could depend.

For the three months which elapsed between the first intimation to him that he was to undertake the work and his departure for the seat of war he devoted himself to personally supervising every detail of the service.

Nothing was left to chance, or indeed to others to carry out without his cognisance, and the result proved the ability with which every measure had been adopted throughout.

'From the outset of this very difficult undertaking, the hands of the Commander were strengthened by the very implicit confidence which H.R.H. the Duke of Cambridge and the Secretary of State for India were enabled to place in him—a confidence merited by field-service of no ordinary distinction, and a career involving a very varied experience.'[1]

[1] *Times of India.*

He was allowed to select his own troops, and he naturally chose the men whose organisation and disciplinary training had been so much the work of his own hands. With the exception of a single company of Engineers (the 10th) which came from England, and a small subsidiary force from the Bengal Army, all the regiments were of the Bombay establishment. In a Minute dated September 5, 1867, he wrote:—

'It is of some consequence in an expedition of the nature of that in contemplation, which may have to encounter hardship, fatigue, and privation of no ordinary kind, that the troops to be employed should know each other and their commander.'

On August 13, 1867, Napier was appointed to the command of the Abyssinian Expedition, and the advanced brigade landed in Annesley Bay, October 30. Sir Robert Napier disembarked on January 5, 1868, and on April 10 the blow was struck which annihilated Theodore's sovereignty, and taught him what was the true strength of the people whom he had insulted.

But there is no need to dwell on the brief Battle of Islamgie, or on the events which so rapidly followed—the surrender of the captives, the storming of Magdala, and the death of Theodore.

One point in the undertaking was of a character personal to Napier. The difficulty of preventing Theodore from massacring the captives who were in his possession must have proved a source of the keenest anxiety to the commander of the army. The wily savage was shrewd enough to realise the strong card he held in his hand, and he strove to play it to his own advantage.

A man of a lower type than Napier would probably have temporised, in the hope of attaining his object without risk to the unfortunate prisoners, but that was not the view taken by him. He felt that the bold game was the one most likely to be at the same time the safest and the most successful.

'As a matter of fact, the release of the Abyssinian captives was mainly due to the determination of Sir Robert Napier to admit of no conditions with an unconquered savage, other than that of

unconditional surrender. The strength of character of the British commander had as much influence on the mind of his enemy as the mysteries of a far-reaching and wonder-working artillery. The savage acknowledged his master, and if he elected to die himself, he dared attempt no injury to the captive band, who, seemingly at his mercy, were under the protection of an enemy he had learnt to respect as well as fear.'[1]

On returning to India at the close of the campaign, Napier received an ovation which marked the keen sense of relief felt by the country at the prosperous conclusion of an undertaking which every one realised was fraught with extreme danger. Prudence, foresight, and skill had overcome all obstacles, and the gratitude of the people was unbounded.

He was thanked by Parliament, and raised to the peerage under the title of Baron Napier of Magdala, and was nominated a G.C.B.

In the year 1870 he was appointed Commander-in-Chief in India, a post which he held till 1876. In this exalted position he was able to carry out on a still larger scale the reforms and measures of amelioration which he had previously instituted at Bombay. When he left India at the conclusion of his term of office, he was greeted with every possible token of regard, and of regret at his departure. A statue by Boehm has since been erected in his honour at Calcutta, on the Maidan, near Princess's Ghat.

Another statue which was unveiled by H.R.H. the Prince of Wales has also been erected in Waterloo Place between the United Service and Athenæum Clubs, where there are also statues of Lawrence, Clyde, Franklin, and Burgoyne.

On arrival home, Napier was appointed Governor of Gibraltar, an office which he held until 1887, when he returned once more to England. An Act of Parliament was passed, July 31, 1868, granting an annuity of 2000*l.* to his lordship and his next

[1] *Times of India.*

surviving heir male for the term of their natural lives. He had been nominated a G.C.S.I. and was made a Field Marshal. Lord Napier was Envoy Extraordinary to the late King of Spain at his Majesty's marriage in 1879, when he received the Grand Cordon of Charles III.

Up to almost his dying day, Lord Napier was in the full vigour of a hale hearty manhood; and the popular voice for years pointed him out, in the event of a European war, as the most approved candidate to hold the command-in-chief of the British army in the field.

The services, both civil and military, he rendered to his country were very various, and carried him into widely different localities. He was a favourite with all, officers and men, and was greatly loved by all who approached him.

Lord Lawrence entertained the highest opinion of Napier's abilities, and was well aware of the intelligent management with which he conducted to a successful issue whatever he undertook, and he wrote, 'If a thing had to be well done, there was no one like Napier for being trusted to do it.'

He died in London of influenza in January 1890, in his eightieth year, and was buried with full military honours in St. Paul's Cathedral. An immense concourse of people were present on the occasion in Ludgate Hill and the neighbouring streets.

Lord Napier was married, first, to Anne Sarah, daughter of George Pease, M.D., E.I.C.S., and secondly, in 1861, Mary Cecilia, daughter of Major-General E. S. Scott, R.A. He was succeeded in the peerage by his eldest son, Robert William, present Baron, *b.* 1845, formerly Lieutenant-Colonel, Bengal Staff Corps.

[From Major-General Porter's *History of the Corps of Royal Engineers*; Colonel Vibart's *Addiscombe, its Heroes and Men of Note*.]

MAJOR-GENERAL WILLIAM WILBERFORCE HARRIS GREATHED, C.B. (1826-78)

THE youngest of the five sons of Edward Greathed, of Uddens, Dorsetshire, was born at Paris on December 21, 1826. He entered the Military College of the East India Company at Addiscombe in February 1843, and received a commission in the Bengal Engineers on December 9, 1844. In 1846 he went to India, and was attached to the Bengal Sappers and Miners at Meerut. The following year he was appointed to the Irrigation Department of the North-West Provinces, but on the outbreak of the second Sikh War in 1848 he joined the field force before Mooltan. He took part in the siege, and at the assault of the town, on January 2, 1849, he was the first officer through the breach. After the capture of Mooltan he joined Lord Gough, and was present at the Battle of Gujerat, February, 21, 1849. This concluded the campaign, and he at once resumed his work in the Irrigation Department, taking a furlough in 1852 to England for two years. On his return to India he was appointed Executive Engineer in the Public Works Department at Barrackpore, and in 1855 he was sent to Allahabad as Government Consulting Engineer in connection with the extension of the East India Railway to the Upper Provinces. He was here when the Mutiny broke out at Meerut, followed by the seizure of Delhi in May 1857. As soon as the catastrophe at Delhi was known, John Russell Colvin, Lieutenant-Governor of the North-West Provinces, who had formed a very high opinion of Greathed's character and capacity, summoned him to Agra, attached him to his staff, and employed him to carry despatches to the General at Meerut, and to civil officers on the way. In spite of the disorder of the country and the roaming bands of mutineers, Greathed succeeded not only in reaching Meerut, but in returning to Agra. He was then

despatched in command of a body of English volunteer cavalry to release some beleaguered Englishmen in the Doab, and a month later was again sent off with despatches from Colvin and Lord Canning to the General commanding the force which was moving against Delhi. The second time he ran the gauntlet and reached Meerut in safety. On his first visit he was the first traveller who had reached Meerut from 'down country' since the Mutiny broke out; on this occasion he remained the last European who passed between Alygurh and Meerut for four months. From Meerut he made his way across country and joined Sir H. Barnard beyond the Jumna. Appointed to Sir H. Barnard's staff, Greathed took part in the action of Badli-ka-Serai (June 8), which gave the Delhi field force the famous position on the ridge it held so long. When the siege was systematically begun, Greathed was appointed director of the left attack. He greatly distinguished himself in a severe engagement on July 9, on the occasion of a sortie in force from Delhi.

Towards the end of the day he and Burnside of the 8th Regiment were with their party in a serai surrounded by Pandees. They resolved on a sudden rush, and, killing the men immediately in front with their swords, led the way out, saved their little party, and put the enemy to flight. Greathed had two brothers with him at Delhi, Hervey Greathed, the Civil Commissioner attached to the forces, and Edward (afterwards Sir Edward), Colonel of the 8th Regiment.

When the morning of the assault of September 14 came, he found himself Senior Engineer of the column commanded by his brother Edward. As they approached the edge of a ditch he fell severely wounded through the arm and lower part of the chest. On recovering from his wounds he joined in December, as Field Engineer, the column under Colonel Seaton, and marched down the Doab, and he took part in the engagements of Gungeree, Patiallee, and Mynpoory. His next services were rendered as Directing Engineer of the attack on Lucknow, under Colonel R.

Napier (afterwards First Lord Napier of Magdala), where he again distinguished himself. On the capture of Lucknow he returned to his railway duties. His services in the Mutiny were rewarded by a brevet Majority and a C.B. In 1860 he accompanied Sir Robert Napier as extra Aide-de-Camp to China, was present at the Battle of Sin-ho, at the capture of the Taku forts on the Peiho, and took part in the campaign until the capture of Pekin, when he was made the bearer of despatches home. He arrived in England at the end of 1860, was made a brevet Lieutenant-Colonel on February 15, 1861, for his services in China, and in March was appointed to succeed his friend Lieutenant-Colonel (now Sir Henry) Norman as Assistant Military Secretary at the Horse Guards. That post he held for four years. In 1863 he married Alice, daughter of the Rev. Archer Clive of Whitfield, near Hereford. In 1867, after serving for a short time at Plymouth and on the Severn defences, he returned to India, and was appointed head of the Irrigation Department in the North-West Provinces. In 1872, when at home on furlough, he read a paper before the Institute of Civil Engineers on 'The Irrigation Works of the North-West Provinces,' for which the Council awarded him the Telford Medal and premium of books. On his return to India he resumed his irrigation duties, and two great works, the Agra Canal from the Jumna, and the Lower Ganges Canal, are monuments of his labours. He commanded the Royal Engineers assembled at the camp of Delhi at the reception of the Prince of Wales in December 1875 and January 1876. This was the last active duty he performed. In 1875 he had been ill from overwork, and his malady increasing he left India in July 1876. He lived as an invalid over two years longer, during which he was promoted Major-General. He died on December 29, 1878. He had a good service pension assigned to him in 1876.

He had been honourably mentioned in eighteen Despatches, in ten General Orders, in a Memorandum by the Lieutenant-Governor of the North-West Provinces, and in a Minute by Lord Canning,

Viceroy of India. He received a medal and three clasps for the Punjab Campaign, a medal and three clasps for the Mutiny, and a medal and two clasps for China.

[Vibart, *Addiscombe, its Heroes and Men of Note; Dictionary of National Biography; Corps Records; Private Memoir.*]

LIEUTENANT-GENERAL WILLIAM ARDEN CROMMELIN, C.B.

Son of Charles B. Crommelin, Esq., was born May 21, 1823. Both the father and grandfather of Charles Crommelin had belonged to the Civil Service, and the grandfather had held the government of Bombay from 1760 to 1767. The family of Crommelin is an old one in French Flanders.

Armand Crommelinck dwelt in his château at Ingelmunster near Courtray in 1579, and a great-grandson of his migrated to the Low Countries from Picardy at the time of the Revocation of the Edict of Nantes. In 1698 he emigrated to Ulster, where he became practically the founder of the Ulster linen manufacture.

William Crommelin entered Addiscombe, February 1840, and left it as First Engineer of his term, December 10, 1841. He arrived at Calcutta in November 1843, and became Assistant Garrison Engineer at Fort William.

In 1844 he was transferred to Hazareebagh. After the Battle of Ferozeshah he was called upon to join the Army of the Sutlej. He arrived just after Sobraon, and was sent to join the Engineers engaged at Kunderghat, in front of Ferozepore, in preparing to pass over the army; and then had to prepare two bridges of boats at Nagarghat, nine miles further up, for the return of the troops. In March 1846, Crommelin became one of the two Executive Engineers of the new province of Jullundur, and commenced the provision for

cover for troops at three cantonments, when he was called upon to proceed with the expedition to Kote Kangra. Crommelin went as Brigade-Major.

The difficulty was to get the 18-pounders up a distance of forty miles from the exit of the Beas into the plains up to Kangra. This was done in a week, but a very hard week's work.

The only practicable plan for such hurried work was to follow in the main the bed of the river which came down from Kangra, and the river was crossed probably fifty times. The Sikh Sirdars were at first inclined to resist, but when they saw a couple of large elephants slowly and majestically pulling an 18-pounder tandem fashion, with a third pushing behind, they were amazed, but said not a word.

When the last gun had reached the plateau, they returned to the fort, and an hour later the white flag was raised. Crommelin was now appointed Garrison Engineer at Lahore. In the following year the second Sikh War began with the troubles at Mooltan. Crommelin was diligent with the preparations, and made two boat-bridges across the Sutlej and Ravee. He served throughout the campaign in Northern Punjab, and was present at the action of Ramnuggur on the Chenab, and afterwards with Sir J. Thackwell in the flank movement by which the Chenab was crossed twenty miles above Ramnuggur, while the Chief remained there facing the enemy, and at the action of Sadoolapore. He was present at Chillianwalah, and also at the crowning victory of Gujerat, on which occasion he served in immediate attendance on the Chief Engineer, Sir John Cheape.

After the battle he was sent in charge of a pontoon train to follow Sir Walter Gilbert in his pursuit of the defeated Sikhs, when he made a bridge over the Jhelum and one over the Indus. In fact, during this campaign he bridged all the great rivers of the Punjab. After the war he was Chief Engineer at Peshawur, but in 1850 went home on furlough, not returning until 1853, when he became Civil Engineer of the Peshawur district. While there he designed

a great suspension bridge over the Indus; but it was never taken up in execution, being superseded for the time by the tunnel project.

In 1854 Crommelin was attached as Assistant to Colonel Napier (afterwards Lord Napier of Magdala), then Chief Engineer of the Punjab. In 1856 he was transferred to the Public Works Office in Calcutta as a Deputy Consulting Engineer, and held that post when the Mutiny broke out. Crommelin was ordered to join Havelock, and arrived at Cawnpore July 25, 1857. When Havelock, after his first advance, decided on returning to Cawnpore with his sick to get reinforcements, Crommelin strengthened the position at Mangalwara, six miles from the river, so that Havelock might remain there until the bridge was ready. On August 12 the Battle of Bussarat Gunge was fought, and at its close Crommelin returned to the river to make final arrangements; on the 13th everything was ready, and in less than a day the passage was successfully accomplished.

On the 15th followed the fight at Bithoor. Havelock remained at Cawnpore till September 15, when Outram arrived. During the previous month Crommelin had made frequent reconnaissances, and had completed arrangements for crossing the river again. The force now marched on Lucknow, and on the 25th they marched into that place. In the final rush up to the Residency, where our troops suffered so severely, Crommelin was struck by a bullet just above the right ankle, a second nearly cut his scabbard in two, and a third mortally wounded his horse. When he was obliged to give up active work, both Outram and Napier insisted that he was to retain the Chief Engineership of their force. His wound gave him a great deal of trouble, and after five weeks' incessant work hospital gangrene set in so rapidly, that at one time he feared he must lose his leg. The mining operations which formed such a remarkable part of the defence had been initiated by Captain Fulton in the earlier part of the siege, and were developed in an extraordinary manner under Crommelin's

command, so as to cover the greatly extended position occupied after the first relief.

After the effectual relief of Lucknow by Sir Colin Campbell and the arrival of the force at Cawnpore, when he had regained his health to a certain extent, he offered his services for active duty in the field, but Sir Colin thought his lameness incapacitated him for further active duty at that time. Strange to say, Havelock in his Despatches omitted to mention the work, or the name of the Engineer Officer who had rendered him such eminent and essential services. But the gallant Outram did not fail to notice the omission, and on September 25, 1858, wrote to Crommelin that he had written officially to Army Headquarters on the subject. Outram remarked: 'These operations were certainly most remarkable efforts of engineering skill, accomplished under great personal exposure and exertion on the part of the Engineer and his corps.' Lord Canning thus wrote to the Court of Directors: 'Your Honourable Court will observe that while the first passage of General Havelock's force in July last occupied nearly a week, the same force, owing to the admirable arrangements made by Captain Crommelin, crossed in about five hours.

'The bridge by which the third passage was effected in September was carried across the Ganges when within three feet of its highest level. Considering the means and force by which it was completed, and that in face of an enemy in full possession of the opposite bank, it was one of the most remarkable operations of the kind that military history can show.

'Yet amid all the comments that have been made in England on that remarkable campaign, and the praise that has been bestowed upon the leaders, the fact that the expedition involved three passages of the Ganges in full flood, or nearly so, would seem altogether to have escaped notice.'

During the second period of the defence of Lucknow, viz. from September 25 to December 18, the Engineers were reinforced by the officers who had accompanied Outram and Havelock.

These were Captain Crommelin, who, on arrival within the Residency, assumed the functions of Chief Engineer, previously held by Lieutenant Anderson, Lieutenants Hutchinson, Russell, and Limond. Captain Crommelin had been wounded on the day of entry, and while he was incapacitated for duty, Colonel R. Napier, Bengal Engineers, who was Military Secretary to Outram, undertook the duties of Chief Engineer in his place. Captain Oakes, Lieutenants Chalmers and Hall, acted as Assistant Engineers. The defence during the second period continued to be principally confined to mining and countermining operations. General Outram writes thus on the subject in his Despatch dated November 25:—

'I am aware of no parallel to our system of mines in modern war. Twenty-one shafts, aggregating 200 feet in depth, and 3291 feet of gallery have been executed. The enemy advanced twenty mines against the palaces and outposts; of these they exploded three, which cost us loss of life, and two which did no injury; seven have been blown in, and out of seven others the enemy have been driven, and their galleries taken possession of by our miners, results of which the Engineer Department may well be proud.'

Captain Crommelin, in his Report dated November 12, gives the following account of his proceedings:—

'We found the soil to be generally light and sandy; still the greater portion of the galleries were run without casing. . . . I may here mention as an extraordinary fact, that two galleries were run respectively to lengths of 298 and 192 feet, without the aid of air tubes. In the latter the lights burnt well; but in the former the men were obliged to work in the dark, and were somewhat (though not greatly) affected by the foulness of the air. . . . The utility of the galleries has proved most marked. . . . On eight different occasions the enemy were heard mining towards our position. We waited patiently until their mines broke into our gallery. We then fired on them through the opening, wounding

several, and in every instance we captured their galleries and tools, and then destroyed the former without using any powder. On two other occasions, when the enemy were heard approaching, we commenced running out short branches through our own galleries, in order to lodge a charge for blowing in those of the enemy. Their miners, in both enclosures, abandoned their galleries. Our success so alarmed the enemy that they have latterly been afraid to approach near our position, and have twice exploded charges at ridiculously long distances from the works that they intended to destroy; indeed, nearer to their own buildings than to ours. I may add that since we commenced our listening galleries the enemy have failed to do us any injury with their mines, and our exposed front has remained perfectly secure.'

In 1858 Crommelin was appointed Chief Engineer of Oude, when he had to provide barrack accommodation at six cantonments. It was the good fortune of the compiler of these notices to have been the personal assistant of Colonel Crommelin in 1860 and 1861, and to have had the great advantage of serving under a chief of such vast military and engineering skill.

A kind and courteous chief and friend and a most hospitable host, he was beloved by every one in the station of Lucknow. He was fond of private theatricals and was himself an excellent actor, and his house was frequently the scene of many excellent private theatrical performances.

He held the post of Chief Engineer of Oude until 1864, when he was specially selected to supervise and superintend a general scheme for the provision of barracks, under the title of Inspector-General of Military Works. On the retirement of General Dickens in 1877, he became Secretary to the Government of India in the Public Works Department. In 1878 he had a very severe illness, and in January 1879 his resignation was accepted in a gratifying letter which gracefully acknowledged his valuable services; first, as a Military Engineer in the Punjab, and in the Mutiny of 1857; and secondly, as Chief Engineer in Oude, and afterwards as In-

spector-General of Military Works, and as Secretary to Government.

'Your services in connection with the provision of accommodation for the European troops command the special acknowledgment of the Government. Your thorough acquaintance with the real wants of the soldiers in respect to barracks enabled you to give the Government advice of the utmost value, and your notes and reports on this subject, as well as on the defences and fortresses of India, remain in the archives of the Public Works Department as a guide and text-book of information for your successors.'

Crommelin in 1875 was awarded a pension for distinguished services. Soon after his return to England he settled at Putney.

On October 29, 1887, he was seized with apoplexy and died the next day. He was a most honourable, gallant, able, and indefatigable soldier and Engineer, always buoyant and cheerful, a steadfast friend and a man without guile.

He was three times married: first, in his youth, to Miss Charlotte Cooper; secondly, to Miss Anne Hankin; and lastly, to Miss Florence Voyle, daughter of the late Major-General Voyle, R.A.

[Vibart, *Addiscombe, its Heroes and Men of Note.*]

COLONEL DANIEL GEORGE ROBINSON (1826-1877)

DIRECTOR-GENERAL of Telegraphs in India, was born March 8, 1826, and entered the Military College of the East India Company at Addiscombe in 1841. He was appointed a Second Lieutenant in the Bengal Engineers on June 9, 1843, and, after going through the usual course of instruction at Chatham, embarked for India in 1845. He arrived in time to join Sir Hugh Gough's army and take part in the Sutlej campaign. He was engaged in the Battle of Sobraon, and received the war medal. He was promoted First Lieutenant on

June 16, 1847. In 1848 and 1849 Robinson served in the Punjab campaign, and took part in the Battles of Chillianwalah, January 13, 1849, and Gujerat, February 21, 1849, again receiving the war medal. In 1850 he was appointed to the Indian Survey, upon which he achieved a great reputation for the beauty and exactitude of his maps. His maps of Rawul Pindi and of the Gwalior country may be especially mentioned. He received the thanks of Government for his book, and the Surveyor-General of India observed: 'I have no hesitation in saying that these maps will stand in the first rank of topographical achievements in India. and I can conceive nothing superior to be executed in any country.' On November 21, 1856, Robinson was promoted Captain, and on December 31, 1862, Lieutenant-Colonel.

In 1865 Robinson was appointed Director-General of Indian Telegraphs. He entered on his duties at a critical time in the development of telegraphs. During the twelve years he was at the head of the department, the telegraphs, from a small beginning, spread over India, and were connected by overland and submarine lines with England. His zeal and activity, joined to great capacity for administration and organisation, enabled him to place the Indian Telegraph Department on a thoroughly efficient footing, and the lines were executed in the most solid manner.

He took a leading part in the deliberations of the Commission at Berne in 1871, and of the International Conferences at Rome and St. Petersburg on telegraphic communication. He was promoted to be Brevet Colonel on December 31, 1867, and Regimental Colonel on April 1, 1874. He died on his way home from India on board the Peninsular and Oriental Company's steamer 'Travancore,' at sea, on July 27, 1877.

The following extract from an article upon him in the 'Journal Télégraphique,' shows the estimation in which his survey work is held abroad :—

'En 1850 il fut nommé officier du service topographique des Indes, où il conquit successivement ses différents grades. Les

travaux géodésiques qu'il exécuta dans ses nouvelles fonctions sont nombreux, importants, et se distinguent par leur extrême exactitude et le fini de leur exécution. . . . Le colonel Robinson était en effet un dessinateur topographique du premier mérite. Les cartes géographiques qu'il a dressées sont peut-être les plus beaux spécimens de ce genre de travail qui aient jamais été exécutés aux Indes, et elles seraient certainement distinguées dans tous les pays, même dans ceux où la géographie topographique a atteint sa plus grande perfection.'

[*Royal Engineers' Records*; *India Office Records*; *Royal Engineers' Journal*, vol. vii.; *Journal Télégraphique*, Aug. 25, 1877; biographical notice by Colonel R. H. Vetch, R. E.

CAPTAIN JAMES PALLADIO BASEVI

Son of George Basevi, Esq. (the celebrated architect who designed the Fitzwilliam Museum at Cambridge, and lost his life by falling from the tower of Ely Cathedral), was educated at Rugby and Cheltenham College, and went to Addiscombe in 1850, obtaining his commission in December 1851. He was at the head of his term, and gained the Pollock Medal. He arrived in India in 1853, and for three years was employed in the Public Works Department. In 1856 he was appointed to the Trigonometrical Survey, in which he continued to serve up to the time of his death. His natural abilities, great powers of perseverance, and fastidiously conscientious devotion to his duties, soon indicated him to be one of the most excellent and valuable officers of the Department. He took a prominent part in all the various branches of the operations, but more particularly in the principal triangulations, of which he completed two chains of an aggregate length of 300 miles.

In 1860 he rendered valuable assistance in a military reconnaissance of the wild mountain tracts of Jeypore and Bastar, west of Vizagapatam, which were then but little known

The Survey of India has had its martyrs as well as its heroes; none, perhaps, more truly so than Captain Palladio Basevi. In 1864 he was selected, at the request of the Royal Society, to undertake certain investigations for the determination of the force of gravity at the various stations of the great meridional arc of triangles which extends from Cape Comorin to the Himalayas. The investigations were to be effected by measuring the number of vibrations which would be made in a given time by certain invariable pendulums when swung at the several stations. Similar operations had been made by various persons in other parts of the world, but generally on islands or coasts. Captain Basevi entered on his work with his characteristic ardour and devotion.

He carried his observations over at least twelve days at each station; for ten hours daily, from 6 A.M. to 4 P.M., he never left his pendulums for more than a few minutes at a time, taking rounds of observation at intervals of an hour and a half apart; then at night he would devote a couple of hours to star observations for determining time.

Thus he voluntarily undertook an amount of work which few men would care to perform continuously, and he carried it through without flinching, or at all relaxing his programme of operations during the five years that the work lasted. He also made very elaborate and laborious investigations of the corrections for temperature and pressure, to be used in the reduction of his observations.

For this purpose it was frequently necessary to raise the room to a very high artificial temperature, forty to fifty degrees above that of the external air. The room was stifling, and of the visitors who went in few would remain in more than a few minutes; but Basevi carried on his observations just as at his ordinary stations for weeks together. No doubt the lengthened period during which he breathed this trying atmosphere was the main cause of his death. In all cases it was found that gravity at a coast

station is in excess of gravity at an inland station, and that at the ocean station it is greater than at Cape Comorin, thereby corroborating the law of local variation previously indicated.

Thus far observations had not been taken at a higher altitude than 7000 feet, and arrangements were made to swing the pendulum on some of the table-lands at heights ranging from 14,000 to 17,000 feet. In the spring of 1871 Basevi proceeded to Cashmere on his way to the high table-lands. The Maharajah did all in his power to assist Basevi, sending with him a confidential agent to carry out his orders, with full powers to act. In order to reach the table-lands Basevi had to cross some of the most difficult mountain passes in the world, and traverse highly elevated and quite uninhabited regions, in which food for man is wholly unprocurable and fuel very scarce; while in many parts neither water is to be met with, nor grass for the beasts of burden.

He required a large number of men to carry his instruments and camp equipage, and several mules or ponies to convey sufficient food for thirty or forty days.

Early in June he reached Leh, the capital of Ladak; he then proceeded to the Khyangchu table-land in Rukshu, eighty miles south of Leh. There, at a spot called Moré, latitude 33° 16′ and longitude 77° 54′, at an altitude of 15,500 feet, he completed a satisfactory series of observations.

After applying the usual reductions to sea-level, he found that the force of gravity at Moré did not exceed the normal amount for the parallel of latitude 6° to the south, as determined by previous observations.

Wishing to have one more independent determination at a high altitude, Basevi proceeded to the Chang Chenno Valley, due east of Leh. Near the east end of that valley, on the confines of China, he found a suitable place, latitude 34° 10′, longitude 79° 25′, at an altitude exceeding 16,000 feet. He hoped to complete his observations in ten days, and then return to India.

But he did not live to carry out his intentions; already the hand of death was upon him. The over-exertion to which he was subjected in a highly rarefied atmosphere, and under great vicissitudes of climate, was rapidly undermining a constitution which, though vigorous, had already been sorely tried. He reached his last station on July 15; the next day he had a bad cough, and complained of pains in the chest. No medical aid was available within hundreds of miles, nor any European within some days' journey. He endeavoured to relieve himself from pain in several ways. He rose at 5 A.M. on the 16th, but while dressing became suddenly very ill, lay down on his bed, and died almost immediately. A blood-vessel had probably burst in his lungs.

Some weeks previously, on crossing the Takalung Pass, he suffered much from the extreme rarity of the atmosphere, the height of the pass being nearly 18,000 feet.

His assistant reported that the vicissitudes of climate at the time of his death were very great, the thermometer falling below zero of Fahrenheit at daybreak and rising to 70° or 80° in the afternoon.

It is clear that, in addition to the risks entailed by severe exertions in an exceedingly rarefied atmosphere, Captain Basevi was exposed to very inclement weather, to great extremes of cold and heat, to frequent rains and heavy snowstorms, which, in a bleak and highly elevated region, almost wholly devoid of fuel, must have caused much privation and suffering.

With the devotion of a soldier on the battlefield he fell a martyr to his love of science and his earnest efforts to complete the work he had to do. In a hard struggle with the physical difficulties he had to encounter he succumbed at the moment that the prize was almost within his reach.

Thus passed away, in the prime of life, a man of sterling worth and excellent abilities, a public servant of whom it may be truly said that it would not be easy to find his equal in habitual

forgetfulness of self and devotion to duty. His age was but thirty-eight.

[From Vibart's *Addiscombe, its Heroes and Men of Note.*]

COLONEL SIR HENRY YULE, K.C.S.I., C.B

Son of Major Yule, of the Bengal Army, was born May 1, 1820, and obtained his commission on December 11, 1838. Reaching Fort William on November 23, 1840, in April 1841 he was appointed to superintend the road from the Cherra coal mines to the Roonah Ghaut, and to report on the coal mines of Cherapoongee. In 1843 he was employed on the Irrigation Works in the upper waters of the Jumna and the Sutlej. During this period he assisted in the construction of a bridge over the Sutlej for the return of the Army of Afghanistan, and he took part in the arrangements for quelling a local disturbance at Kythal. In 1843 he went to England and married, but returned to India by the close of the year. In 1846 he succeeded Lieutenant (afterwards Lieutenant-General Sir Richard) Strachey in charge of the head works of the Ganges Canal.

In the first Punjab War he was called away from his work there, but his duties were confined to making bridges across the Sutlej for the advance of the Army. In December 1848 he was engaged under Baird Smith, and was attached to General Campbell's Division. He was present at the Battle of Chillianwalah, January 13, 1849. In the same year he again went to England and did not return until 1852.

He was at once sent on a surveying mission to Arracan, at the time of the second Burmese War. He made his way almost unattended across the Arracan Mountains, and walked into the British camp at Prome on the Irrawady. Thence he passed on to Singapore to report on the defences of that settlement. On his return to Calcutta he was appointed Deputy Consulting Engineer for the railway system them commencing. In 1855 he was

appointed Under-Secretary in the Public Works Department, Colonel W. Baker being the First Secretary.

At this time Sir Arthur Phayre was directed to proceed on an embassy to the King of Burmah, and Yule was appointed Secretary to the Embassy. The political results were not of great importance, but the Report of it by Yule contains a fund of useful and curious information about that country, illustrated with his clever sketches. In 1857 his labours were checked by the breaking out of the Mutiny. Yule's part in this was confined to Allahabad, where he had to improvise defences. He visited Cawnpore soon after the terrible tragedy, and he afterwards designed the beautiful monument which marks the fatal well. He was called back to Calcutta by press of work in the Public Works Department, and when Colonel Baker retired Yule succeeded him as Secretary to Government.

He occupied this position until his retirement in 1861. His early retirement at the age of forty-one was caused partly by his own state of health, and partly by family reasons. In 1860 he had been obliged to take some months' sick leave, which he spent in visiting Java. During his service he was brought into personal contact with Lords Elgin, Dalhousie, and Canning, who all greatly appreciated his talents.

The fact of his being selected to fill the post of Secretary to Government in the Public Works Department at the age of thirty-six, after only seventeen years' service, is sufficient evidence of this. His two brothers who served in India were both distinguished men. Robert was killed in a brilliant charge of the 9th Lancers at Delhi in 1857, when in temporary command of his regiment, and Sir George in the Civil Service rose to be Resident at Hyderabad, and finally had a seat in the Council at Calcutta. On leaving India, Henry Yule resided in Italy for some years, and gave his mind to literature. His first work was followed in 1871 by the well-known and important work, 'The Travels of Marco Polo.' The merit of the work was not so much in the care with which the

text was transcribed, or in the accuracy of the translations, as in the remarkable wealth of the notes, which embrace every branch of the subject, whether it relates to China itself or the countries visited *en route* by Marco Polo.[1]

In 1875 he came to England, and was soon appointed to the Council of India. In this position he remained until nine months before his death, when he retired at his own request.

In 1885 he had been made one of the few permanent members of the Council, the ordinary tenure of the office being ten years. On his retirement the Secretary of State made a special request to her Majesty to mark her high opinion of his service by appointing him a K.C.S.I.

He was awarded the Founders' Medal of the Royal Geographical Society in 1872, 'for the services rendered to geography by his great work.' He was also a member of the Royal Asiatic Society, and was President from 1885 to 1887. He had the Gold Medal of the Geographical Society of Italy, and was a Corresponding Member of the French Institute.

Besides these fixed employments he was continually at work on some literary production. He wrote frequently for magazines and for the societies of which he was a member, and also many biographical notices of deceased Indian officers. In 1886 he published, in concert with the late Mr. A. Burnell, M.C.S., 'A Glossary of Indian Terms, or Hobson-Jobson.'

In the 'Encyclopædia Britannica' he contributed twenty articles on matters connected with the East, and the subjects of his contributions to journals of all kinds were numerous and varied.

For ten years before his death he suffered from illness, and finally passed away on December 30, 1889, in his seventieth year.

[From Colonel Vibart's *Addiscombe, its Heroes and Men of Note.*]

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[1] *Times* notice.

MAJOR WILLIAM HENRY PIERSON (1839-81)

LATE Bengal Engineers, eldest son of Charles Pierson, of Cheltenham, by his wife, Louisa Amelia, daughter of William Davidson, of Havre, France, was born at Havre on November 23, 1839. He was educated at Southampton and Cheltenham College, which he entered in 1853. He soon rose to be head of the College. In 1856 he won the Gold Medal of the British Association; and Captain Eastwick, a Director of the East India Company, without knowing him, and on the strength of this success, gave him a nomination for the East India Company's Military College at Addiscombe.

There he gained the Pollock Medal and six prizes. He obtained his commission in three terms, competing against four-term men; was first in mathematics, and was gazetted a Lieutenant in the Bengal Engineers from December 10, 1858. The Lieutenant-Governor, Major-General Sir F. Abbott, described him as 'the most talented scholar I have seen at Addiscombe, and his modesty would disarm envy itself.' At Chatham, where he went through the usual course of professional instruction, he studied German privately, and was an admirable chess-player, musician, and oarsman.

Pierson went to India in October 1860, and soon went on active service with the Sikhim Field Force, from January to May 1861. He did such good engineering work in bridging the Teesta and Riman rivers, under great local difficulties, that he was three times mentioned in despatches, and received the thanks of the Governor-General. Returning from Sikhim, Pierson joined the Public Works Department in Oude, where his successful construction of the Faizabad road gained him promotion in the Department. He was fond of sport, and while in Oude distinguished himself in pig-sticking.

When the Indo-European telegraph was commenced in 1863, Pierson was selected for employment under Colonel Patrick Stewart. In the winter of 1863-64 he served at Baghdad under Colonel Bateman-Champain, who posted him to the charge of 220 miles of line, from Baghdad to Kangawar. His work was very arduous. Bateman-Champain recorded that the eventual success of the telegraph was chiefly due to Pierson's indefatigable exertions, to his personal influence with the Persian authorities and with the Kurdish chiefs of the neighbourhood.

In 1866 Pierson was sent on telegraph duty to the Caucasus, and on his return march narrowly escaped being murdered by a dozen disbanded soldiers. After short leave in England, and acting at Vienna as Secretary to the British representative at the International Telegraph Conference, he was placed at the disposal of the Foreign Office to design and construct the new palace of the British Legation at Teheran. The building does equal honour to his taste as an architect and his skill as an Engineer. He was promoted Captain on January 14, 1874.

While Director of the Persian telegraph from October 1871 to October 1873, the excellence of his reports and of his administration repeatedly evoked the special thanks of the Government of India. During the famine of 1871 he worked, in addition, with desperate energy to relieve the starving population of Persia, a duty for which he was well fitted by his thorough knowledge of the country and of the Persian language. He also designed, at the Shah's request, some beautiful plans for public offices in Jekran, sketching and working out every detail himself.

Returning to England in 1874, he applied himself to the question of harbour defences and armour-plating, and studied at Chatham, acting for a time as instructor in field works. He left Chatham the following year, and, until his return to India from furlough in November 1876, he devoted himself to music and painting. In July 1877 he was appointed Secretary to the Indian

Defence Committee, and was the moving spirit in the consideration of the proposed defences for the Indian ports of Aden, Kurachi, Bombay, Madras, Calcutta, and Rangoon.

During the Afghan Campaign of 1878–81 the services of Pierson were several times applied for by the military authorities, in one case by General Sir Frederick (now Field-Marshal Lord) Roberts. He was actually appointed Assistant Adjutant-General, Royal Engineers, with the Kabul force, but he could not be spared from his post on the Indian Defence Committee.

In September 1880 Pierson was appointed Military Secretary to Lord Ripon, the Governor-General, in succession to Sir George White (afterwards Commander-in-Chief in India). He mastered the work very rapidly, and the Viceroy publicly expressed his thanks to him on the occasion of his carrying off some prizes for painting at the Simla Fine Arts Exhibition in 1880. Pierson subsequently accompanied Lord Ripon on a winter tour through India with a view to determine the defensive requirements of the chief naval and military positions of the peninsula.

Pierson was appointed Regimental Major on November 25, 1880, and in March 1881 was appointed Commanding Royal Engineer of the field force proceeding against the Mahsud Wuziri tribe. He joined the expedition in weak health, but in high spirits at the prospect of command on active service, to which he had long looked forward. Throughout the expedition the Royal Engineers were much exposed, in road-making, mining, and other arduous duties, to the great heat, and on returning to Bannu Pierson was seized with dysentery, and died rather suddenly on June 2, 1881.

Pierson's name has been commemorated by the corps of Royal Engineers in the Afghan Memorial in Rochester Cathedral, and by a marble tablet, on which is a large medallion relief of his head, placed by the Council in Cheltenham College Chapel. He married at Hollingbourn, Kent, in August 1869, Laura Charlotte, youngest daughter of Richard Thomas, who was nephew and heir

COLONEL SIR JOHN BATEMAN-CHAMPAIN, K.C.M.G.

of Richard Thomas, of Kestanog, Carmarthenshire, and of Eyhorne, Kent.

[From the memoir in the *Dictionary of National Biography*, compiled by Colonel R. H. Vetch, R.E.]

COLONEL SIR JOHN BATEMAN-CHAMPAIN, R.E., K.C.M.G.

RARELY has the death of an officer of the corps been more keenly felt than that of Sir John Bateman-Champain by those of all ranks, civil and military, with whom, in the course of his active and varied career, he was brought into contact. Among his friends—and all who knew him may be classed in the number—the absorbing feeling was one of painful personal bereavement. The remarkable success which attended him in all his undertakings, especially in the chief work of his life, the existing system of telegraphic communication with India, was due in large measure to his great personal popularity, which formed one of the most distinguished characteristics of the man. It predisposed his superiors to listen to his advice, it spurred his subordinates on to the utmost limit of their energies, and in those general consultations and conferences in which so much of his work consisted it led to the adoption of his proposals. Some of the achievements of Engineer officers in other fields of activity appeal more directly to the imagination, but few have had more beneficial and far-reaching results than the *magnum opus* of Champain's life. Of course many others co-operated in what was essentially a corps undertaking, but to him, more than to any one individual, are due the establishment and organisation of the system which has so long secured to us the means of rapid and uninterrupted communication with our Eastern Empire, the importance of which, whether to the State or to the mercantile interests of the country, it would be difficult to exaggerate.

The 'Times,' in a leading article on the Indian celebration

of her Majesty's Jubilee, points out that our constant intercourse with India by means of the telegraph constitutes, in its effects, the most striking and important modification of the relations between India and England that has signalised her long and beneficent reign, and adds :—

'In a material sense this knitting together of all parts of the Empire is one of the greatest achievements of the present reign, and its moral effects will be felt for many generations to come. It is sometimes the fashion to deride what are called the triumphs of modern civilisation, and, in truth, they are occasionally somewhat vulgarly paraded. Cobden thought the Ilissus was degraded because he could step across it, and he contrasted it with the mighty Mississippi. He even made a comparison with "all the works of Thucydides," which our modesty forbids us more particularly to recall. But if we do not ignore the responsibilities it imposes, it is legitimate in proper season to dwell on the advantages which the growth of civilisation brings. And, while acknowledging the results of science, we ought not to overlook the means whereby they are utilised. Science does not aim directly at utility; it leaves that to human enterprise. Knowledge is power, because human enterprise may always be trusted to turn knowledge into power. We do not owe the clear and comprehensive view of all India *en fête* which all England has enjoyed during the past few days merely to the invention of the telegraph, but to the energy and organising faculty of those men who have established the telegraph in all parts of India, and connected it across two continents with these islands. To the Indian Telegraph Department, which is only one among the many excellent departments of the most intelligent bureaucracy which the world has ever seen, and to the Indo-European Company, our debt is great, and not only our debt, but that of all our readers. "*Hæ tibi erunt artes*" may well be the sentiment of the Jubilee, not only in India, but throughout the wide expanse of the British Empire.'

No apology, therefore, is required for placing before his

brother-officers a record of the services of one whose name is identified with that great work in the success or failure of which the credit of the whole corps was involved. To make the record intelligible, it was found necessary to incorporate in it a short outline of the history of the Indo-European Telegraph, thereby extending the narrative somewhat beyond the usual limits of an ordinary memoir. The only regret of the writer is his own inability to do justice to the task—in other respects a labour of love—which, at the request of the editor, he has undertaken.

John Underwood Champain (afterwards Bateman-Champain) was the son of Colonel Agnew Champain, of the 9th Foot, and was born in London on July 22, 1835. He was educated at Cheltenham College, where his high spirits and good temper made him a great favourite. Besides mathematics, in which he excelled, he acquired a sound knowledge of Latin, which no doubt afterwards helped to form the clear concise style which characterised his writing. He early became an accomplished draughtsman, and while at Chatham his artistic talents were often brought into requisition for the embellishment of the sketches on his friends' reconnaissances. In the Albert Hall Exhibition of 1873 a gold medal was awarded to a Persian landscape which Champain had painted for the writer, by whom it was exhibited. Before going to Addiscombe, Champain studied fortification and military drawing for a short time at the Edinburgh Military Academy under Lieutenant Henry Yule, of the Bengal Engineers (afterwards Colonel Sir Henry Yule, Member of the Indian Council), by whom he was spoken of as by far the best pupil he ever had. He left Addiscombe at the head of his term with the Pollock Medal, but without the good-conduct sword, for which the authorities adjudged him disqualified by the excessive exuberance of his spirits.

After completing the usual course of instruction at Chatham, he went to India in 1854, much disappointed at the failure of his efforts to induce the Court of Directors to let him go to the Crimea. While acting as Assistant-Principal of the Thomason

College at Roorkee, the Mutiny broke out, in the suppression of which he was continuously employed throughout the war. As Regimental Adjutant, he was present at the actions on the Hindun river, Badli-ka-Serai, and the capture of the heights before Delhi. During the siege he took his full share of general work in addition to his duties as Adjutant. One of the batteries was, by order of the Commanding Engineer, named after him. While still on the sick list from the effects of a grapeshot wound received on September 13 he volunteered for duty, and was present, although very lame, at the capture of the palace on the 20th.

It was characteristic of Champain, then barely twenty-two, that his admiration was excited still more by the humanity than by the pluck of our troops, the latter quality being one which he evidently took for granted. Writing on September 21, immediately after the storming of the palace, he says: 'Our men did not kill a single man, that I could see, who was not a Sepoy; and, I am glad to say, not a woman or child was touched.'

He commanded the Sappers during the march to Agra, the capture of Fathipur Sikri, and numerous minor expeditions in the neighbourhood. On the march from Agra to Fatheghur he commanded a mixed force of nearly 2000 men. He retained command of the Sappers during the march to Cawnpore and Alumbagh, reverting to the Adjutancy in March 1858. Sir James Outram, whose force he had joined, he writes of as 'a demigod, and one of the finest soldiers that ever stepped.' At the final capture of Lucknow he twice acted as orderly officer to Sir Robert (now Lord) Napier, by whom he was specially thanked for having, with Captain Medley and 100 Sappers, held for a whole night Shah Najif, an advanced post which had been abandoned. After assisting in many minor engagements, he conducted the Engineer operations at the capture of Jagdispur, and joined in the pursuit of the mutineers to the Kaimur hills. He subsequently became

Executive Officer of Gondah, and afterwards of Lucknow, where he remained until the offer of special employment came, which he thus announces :—

'Lucknow: February 2, 1862.

'I am the happiest man in India to-day, I believe. Here is a telegram I received two days ago from Colonel Yule:[1] "Lord Canning desires me to ask if you are willing to accompany Major Patrick Stewart to Persia on telegraph business. Say by telegram if you accept. Understand it is left to your choice.' You needn't doubt what answer I gave; and I am now the envy of Lucknow. . . . I hope to leave this in four days and rush across country to Bombay. Direct there, please, until I give you Baghdad as my address. I am going to call on Sindbad as I pass through Balsora! Now you must excuse this letter being entirely about myself. It's human natur'. I can hardly believe my luck, and bless Lord Canning ten times a day. I am sorry to leave Lucknow—the best station, without exception, in India. The people here are so kind that I am ashamed to look glad at going. Can I send you Persian cats, Arab horses, dates, or Shiraz wines? . . . Glad to hear there is to be no war with the Yankees.'

At this time there was no telegraph to India. The necessity for one had been urgently felt during the Mutiny, and efforts had already been made to supply the want. Submarine telegraphy was still in its infancy. A short-lived cable had been laid along the African coast to connect Malta with Egypt, and another from Suez to Bombay by the Red Sea and Kuria Muria Islands in the Indian Ocean had proved an utter failure. Like the Indian railways, its construction had been conceded to a private company with a Government guarantee. Not a single message ever passed from end to end, but the terms of the concession had been fulfilled, and Government was saddled for fifty years with an annual payment to the shareholders of over 36,000*l*. After this unfortunate

[1] Whose pride it was to have selected him, on Stewart's request for a first-rate young officer.

experiment nothing further was attempted in the way of guarantees, and for some time the question of telegraphic communication with India was left in abeyance. At last Government determined to take the matter into their own hands without the intermediate machinery of private companies, the route chosen being the Persian Gulf instead of the Red Sea. The scheme adopted consisted of a land line along the Mekran coast from Kurachi to a point as far west as practicable, and thence a submarine cable to the head of the Persian Gulf, where it was to join an extension of the Turkish line recently erected from Constantinople to Baghdad. A loop line through Persia, from Bushire *via* Teheran to Baghdad, was included in the scheme as an alternative to the Baghdad-Bussorah extension, which, it was feared, would be constantly interfered with by the semi-independent tribes in that part of Turkish Arabia. The task of making the scheme a reality was entrusted to Major Patrick Stewart, R.E., and Champain, as we have seen, was appointed his assistant in the preliminary operations.

It would be impossible, within the limits of this notice, to give an account of the endless diplomatic difficulties which had to be surmounted before anything could be done towards the accomplishment of the object which the Government had in view. Suffice it to say that, after a year spent in fruitless negotiations, a convention was concluded, by which the Persian Government undertook, on certain conditions, to erect the desired Baghdad-Teheran-Bushire line themselves, and to permit *one English officer* (!) to come to Persia to instruct them in the best manner of doing so. On the strength of this extremely vague and meagre agreement, Champain was appointed director of the Persian portion of the undertaking, with a staff to assist him of three officers and twelve non-commissioned officers of the Royal Engineers and six civilians, for the presence of none of whom had any provision whatever been made in the convention, and whose arrival in the country was not unnaturally viewed with the very strongest

suspicions. The situation was altogether false and unsatisfactory. A line of 1250 miles, through an extremely difficult and troublesome country, had, by hook or by crook, to be made with Persian materials, at Persian expense, by a handful of foreigners whom every man in the kingdom, from the Shah downwards, then regarded as pestilent interlopers. Looking back with the knowledge of subsequent experience, the writer is astounded at the cool impudence of the whole undertaking. The marvel is that our throats were not promptly cut by patriotic brigands. The work, however, advanced 'somehow' until the erection of the line was nearly completed, when matters came to a deadlock. For two or three months we withdrew altogether from the telegraph, and our departure from the country seemed all but certain. But Champain never despaired. Negotiations were renewed as a sort of 'forlorn hope,' and, somewhat to our surprise, they resulted in a working arrangement for five months, after which, in the words of the convention, we should 'cease to have any connection with the telegraph and *at once quit the country.*' The five months' agreement had not yet come into operation when, to the grief of all who served under him, Colonel Patrick Stewart, who in the meantime had laid the Persian Gulf cable and gone to stir up the Turkish authorities, died at Constantinople. Champain was summoned to carry on his work, and the writer left in charge of the operations in Persia. Writing at this time from Teheran, Champain says: 'You will see in my epistle to Ryde that I am off to Constantinople at once to take my dear lost friend's place. . . . A real triumph came yesterday. You remember perhaps that the great objection to our *last* telegraph agreement with the Persians was that we were only to remain five months after the through line was open. I tried hard for seven months, and then for six, but had to agree to five; the "Telegraph Prince" and his secretaries being our great opposers. They were jealous of us and anxious to get the complete management. Yesterday the Sertip came to me, and, after a lot of flattering palaver, asked when our

five months were to begin. I replied in about ten days. He then said, "Shall you really leave Persia when the time has passed?" "Certainly," was my answer. He said, "Could you be induced to leave all the English staff here if the King desired it?" I pretended to be doubtful, and replied that that was precisely what we wished when the agreement was first drawn up, and that personally I should rejoice in such an arrangement, but that I couldn't speak as to the views of the English Government. He then confessed to me that the Prince and he had been racking their brains as to what they should do if we really left. He allowed that our management surprised the Persians, that their receipts even now were very great from the line, and that the Prince was horrified at the idea of all breaking down when we went, and at the correspondent anger of the King. He added that the Prince himself had actually written to his Majesty asking him to try and prolong our stay for at least a year. Imagine my triumph! . . . Smith arrives from Ispahan to-day, and I leave for Constantinople on Monday. Oh that Stewart had survived to see our grand difficulties over!'

The difficulties, however, were only beginning. The Persian authorities were simply feeling their way. They had already, at the instigation of certain foreign legations, sent secretly to Europe for a staff of telegraphists to take our place when the five months expired, and a number of them arrived from Paris and Constantinople shortly after Champain's departure. Many years elapsed before the very natural jealousy and suspicion with which the Persian Government and people viewed our ubiquitous presence in their country could be overcome by a persistent policy of non-interference in local affairs, and by the seizing of every opportunity to serve and oblige them.

From 1865 till 1870 Champain was associated with Colonel Sir Frederic Goldsmid as the assistant of that officer in the general direction of the whole scheme, which was still far short of accomplishment. The hopes expressed by Sir F. Goldsmid as late as

1867, that Anglo-Indian messages might ultimately be expected to reach their destinations regularly and accurately within three days of their original dates, were generally regarded as utopian. A curious illustration of the chaotic state of international telegraphy occurred in October 1864, shortly before Champain left Teheran. A telegram had been sent from India, to the effect that the director of the Punjab Railway had been struck with paralysis, and that some one should be sent at once to replace him. In its devious course towards London it had been translated into Persian, and back again into English, and finally reached the Secretary of State in the form of a report through the Embassy at St. Petersburg, from the English Legation at Teheran, that the director of the telegraph at Teheran had been paralysed. The word *Punjab* had in Persian been mutilated into *inja* (*here*); the place of origin had dropped out, and *Teheran* been inserted for *Lahore*; while some intelligent telegraphist, knowing there was a *telegraph* but no *railway* in Persia, had given the message its final correction by substituting the one word for the other. A repetition which was called for from Constantinople and Baghdad confirmed the report! Fortunately, international telegraphy was still as slow as it was inaccurate, and, almost as soon as the message (by that time twenty-six days old) was communicated to Champain's father, letters of later date arrived from himself.

There was clearly abundant scope for all Goldsmid's and Champain's energies. For some years their efforts were concentrated on Turkey, where Champain spent great part of the year 1866 in trying to get the Baghdad line into a state of efficiency. In this he was not altogether unsuccessful, and it soon became evident that the greatest difficulties lay west, rather than east, of Constantinople. Meantime, the Russians had carried their telegraph system to the Persian frontier, and there joined it to a rickety line which the Persians had constructed to Tabriz and Teheran. A telegraph convention was concluded between the two Governments, and announcements made all over Europe that

a splendid line, *via* Russia, was ready to transmit Indian telegrams with accuracy and despatch.

A rush upon it was the immediate consequence, and confusion only became worse confounded. From the first, however, Champain entertained great hopes of the ultimate success of the new route, and in 1867 he was allowed to go to St. Petersburg to see whether special wires could not be set apart through Russia for Indian traffic. He was very graciously received in private audience by the late Emperor, on whom he made a most favourable impression, being specially invited by his Majesty to accompany the Court to Moscow. Although no definite arrangements were made, this visit gave rise to intimate and friendly relations with General Lüders, the Director-General of Russian Telegraphs, and paved the way for the concession subsequently granted to the Indo-European Company for the erection of a line through Russia connecting London with Teheran, thus completing the chain of direct and special telegraphic communication with India.

Meantime many negotiations had been carried on by Goldsmid and Champain with other European Governments with a view to improving the transmission of messages between London and Constantinople.

In 1870 Sir Frederic Goldsmid resigned the chief direction on appointment as arbitrator for the settlement of the eastern frontiers of Persia, and Champain assumed sole charge of what had now come to be styled the 'Indo-European Government Telegraph Department.' Almost simultaneously with the completion of the *Indo-European* line through Germany, Russia, and Persia, the *Eastern* Company opened a submarine telegraph from Falmouth to Bombay, by way of the Mediterranean and the Red Sea. There were thus two direct through lines between England and India, besides the Turkish route which joined the Indo-European Government cables at the head of the Persian Gulf. Every effort was now made to strengthen and improve those

sections which belonged to, and were worked by, her Majesty's Government—viz. the *Persian* section from Teheran to Bushire, and the *Persian Gulf* one from Fao (at the mouth of the Tigris-Euphrates) to Bushire and Kurachi. In Persia our treaty with the Shah's Government was entirely remodelled and its term prolonged. A third wire was added to the two already at work, and iron standards were substituted for wooden posts. A second cable had recently been laid from Bushire to Jashk (outside the Persian Gulf), to which point the Mekran coast land line had been extended from Gwadur, its former terminus. While on his way to India to superintend the laying of that cable, Champain nearly lost his life in the steamer 'Carnatic,' wrecked off the island of Shadwan in 1869. A letter of his written at the time, from which the following extracts are made, gives an interesting account of the wreck, and, like all his letters, contains many characteristic touches and expressions :—

'On board the "Sumatra," bound to Suez :
'September 15, 1869.

'I am scarcely up to writing a very long letter, being pretty considerably tired ; but I must scribble a few lines to go on by this mail to England. We have had a most disastrous voyage, and this time yesterday I was some fathoms below the surface of the Red Sea, with little prospect of ever coming up. . . . We left Suez on Sunday morning at ten, in the good ship "Carnatic." At 1 A.M. on Monday morning she ran aground, going 11 knots, on a coral reef, about five miles from the island of Shadwan, close to the bottom of the Gulf of Suez. . . . The reef was nearly above the level of low water, but of course buried deep at high water, and therefore no agreeable haven. The pace we were going at took our bows well up the reef, leaving the stern in deep water. We bumped horribly on Monday, but were very jolly and gave no trouble. . . . A good number of the passengers wanted to insist on the captain putting us ashore, but I was averse to bothering him, and advocated the principle of sticking to the ship.

On Monday night the captain came aft and made a sort of speech, thanking us for our assistance and behaviour. He asked us to nominate a committee to inspect the vessel, and I was one of the party. The weather had become calm. It was far too late *then* to provision the boats and pull to an unknown coast, so we agreed to remain on board another night on the full understanding that we were to go ashore in the morning. At 1 A.M. on Tuesday (yesterday) the wind rose, and fresh leaks manifested themselves, the water getting up into the engine-rooms and washing freely over the stern. We were all ordered to the forecastle, and amused ourselves by calculating how long the ship could stand it. Pottering went on till eleven, the vessel having gone from this angle ⟍ backwards to this ⟋. The boats were then alongside. Our only women (three) and one child were handed in, and perhaps two or three men, when smash, crash, went the vessel in the middle. I was shot with lightning force, with dozens of other men and at least 300 boxes, a heavy gun, and sundry other unpleasant articles, down a slippery deck at an angle of about 80°. We were plunged into a boiling whirlpool and went under to any depth. I was as cool as I am now, though fearfully bumped by the luggage. I knew I must come up some time, and I kept my breath well. After an immense time, as it seemed, I was shot up by the whirlpool, and was just going to take breath when two men pulled me under. I kicked them off and came up again, when a third man seized my legs. Down I went, and he let go, but I was nearly done. I thought of the dear ones at home and gurgled a prayer, but I came up again. Then another man seized me by the neck, and I saw it was Johnston. I gasped out to him that we were all right if he would only let go, as we were close to a mast which was then about the only part of the wreck above water. He instantly understood and dropped me. I got on the mast and pulled him up and took five minutes to breathe; then I went down and got hold of Taylor and dragged him out almost drowned. Another man, Morton (who was about the only

other as fresh as myself), and I pulled up an insensible German, and then the Post-Office man, who had been caught in a rope and was apparently dead, but we brought him round. Meanwhile others had succeeded in getting on the mast, and we felt safe and began to look about. The boats, and many men who got clear on the other side of the ship, had made the reef, and the men were standing up to their waists in water. After an hour or so a boat came off, and we dropped the weak ones of our party into the water with a rope round their waists, and they were dragged into the boat. I left in the last boat with the chief officer, and was so well and hearty that, instead of pulling to the reef, we took oars and went round it under the lee towards the mainland. There I got out and walked back up to my middle in water, and lent a hand to the work there. Eventually I took command of the second lifeboat, with the women and about thirty men, and pulled stroke-oar all the way to the mainland. The other boats followed close, and, after immense trouble, we pulled as near as we could to the shore, and had about two hours' work landing the stores and people, working up to our waists till 8 P.M. Directly that was done I volunteered to go out to sea in a boat to try and intercept a passing ship. The chief officer (Mr. Wyatt), Morton, and myself and three Chinamen started about nine, and almost immediately saw the lights of a steamer in the distance. I had adjured the people we left behind to forget fatigue and make a bonfire at once at *any* cost, as no ship could see us six miles from her course in the dark. There was *no water* within a hundred miles, and had the "Sumatra" passed we should most likely have gone mad and died of thirst. Of course I didn't mention this idea. The management of affairs throughout had been execrable. . . . The kegs of water chucked in at the last moment had not been bunged, and I think we (150 or 200 people) had drink enough for about two days. We had only one rocket. We sailed towards the ship to cut her off, and were rejoiced to see a glorious bonfire flaring up from our castaway companions

on shore. The ship, by her lights keeping so stationary, had evidently seen the fire, so at this critical moment I let off the rocket from the small boat. It soared up grandly, and we then felt that we were all right. We soon got alongside the "Sumatra," and got on deck a pretty figure. . . . Wyatt, the chief officer, was the soul of the ship's company. He slaved from morning till night, and behaved like a trump.'

One of the most important, although least prominent, of Champain's services was the great assistance which, as a representative of the Indian Government in the periodical telegraph conferences, he gave to the work of organising and regulating the whole system of international telegraphy. His practical sagacity, sound judgment, and unfailing tact eminently fitted him for the work, in which another accomplishment of his—a power of giving clear and concise expression to his views, whether verbally or in writing—was of peculiar value. His numerous reports and official letters are models of what such documents should be. With his foreign colleagues he was quite as popular as among his own countrymen, and the sad news of his death was received with sincere regret in every part of the civilised world. Take the following (as an illustration of his influence) from a private letter written during the Berlin Conference of 1885:—

'Kaiserhof, Berlin: September 6, 1885.

'I have been curiously successful so far, and have, after really severe fighting, carried everything I tried for.

'Germany fought me on the Rectificatory question. First they got fourteen to four against me in Committee. I appealed to Conference. The question was re-opened and sent back to Committee. Voting, ten to eight against me. Yesterday it was fourteen *for me* and four abstentions! Triumph of obstinacy! In the other matters, the only ones I cared for, I have also won

and am cock-a-hoop to-day. . . . How the dickens am I to get two fierce bulldogs for the Jâm of Beyla?'[1]

Special questions frequently arose, the discussion and settlement of which took him to many of the European capitals, while in the ordinary course of his duties he made repeated visits to India, Persia, and the Persian Gulf. During a somewhat protracted stay at Teheran, while negotiating a new telegraph treaty in 1872, his hopes of getting away had been more than once disappointed by the unexpected postponement of the signature. When at last on the point of starting, with the prospect of reaching England as soon as his letter, he writes: 'I can't write now of course, and only send this because the ways of Providence are so inscrutable, and Pharaoh's heart *might* again be hardened.'

In 1870-72 one of the most grievous famines of which we have authentic record prevailed throughout Persia. A fund, in which Champain took a most active interest, and of which for some time he was secretary, was raised at the Mansion House for the relief of the appalling distress. Much of the good done by this seasonable charity, a great proportion of which had been distributed by the telegraph staff, was due to his painstaking care and forethought. Visiting Persia when the famine had disappeared, he writes:—

'Gulhek: September 18, 1872.

'The courier was to have been sent off yesterday, but was detained, so I can add a little to what I have written above. I shall be able, too, to write to the Mansion House about the Famine Relief Fund. I am glad to say that there are no two opinions about the good done by our collection. It seems to have been excellently managed, and thousands and thousands who would have starved were maintained by us all over the country.

[1] Like many other commissions of the kind, the Jâm's request was carefully attended to. Two bulldogs of ferocious aspect and surpassing fierceness were obtained and forwarded with no slight trouble to Beluchistan.

The example, too, was not lost, and the richer Persians were forced to do something. Food is still dear compared with former times, but there is plenty of it.'

His last voyage to those regions was undertaken in October 1885, for the purpose of laying a third cable between Bushire and Jashk, and thus strengthening what had become, through the old age of the existing cables, the weakest portion of the Indo-European system. On the completion of the work, he proceeded to Calcutta to confer with Government on various telegraph matters. While visiting Delhi on his homeward journey, he called on New Year's morning at the Headquarters Camp to greet his old friend Sir Frederick Roberts. His surprise and gratification may be imagined when his Excellency congratulated him on the high mark of distinction by which her Majesty had been graciously pleased to recognise his 'services during many years in connection with the telegraph to India.' The good news could not have reached him through a more welcome channel, or at a more appropriate spot than the very ground on which his own tent had stood during the critical days of the siege of Delhi. It is pleasing to think that, although he survived but one short year to enjoy his honours, they did not come, as they often do, *too late*. In the previous year the Shah of Persia sent him a magnificent sword of honour, which our Government gave him special permission to accept.

For many years he had suffered from acute attacks of hay fever, which gradually assumed in later years a chronic form of asthma. As early as July 1872, we find him writing from Russia: 'My hay fever has not bothered me a bit, so I may hope that I have done with it till next year. If so, 1872 shall be marked with a white stone in my tablets.' During the last few years of his life the asthma became complicated with bronchitis, and he was frequently urged, but always in vain, to take some months' complete rest in a genial climate. When at last he was compelled

to yield, it was already too late. He left England on January 10, 1887, and, after spending nearly three weeks at Cannes with no benefit, went to San Remo, where he died on February 1.

In 1865 he married Harriet, daughter of the late Sir Frederick Currie, Bart., a distinguished member of the Civil Service of India. He leaves, besides his widow, six sons and two daughters. In 1870, on succeeding to the estate of Halton Park, in Lancashire, he assumed the name of Bateman in addition to Champain. He was a member of the Council of the Royal Geographical Society and of the Society of Telegraph Engineers, of which he was President in 1879. He was also a member of the Royal Engineers' Institute, and of the sub-committee considering the question of the incorporation of the Royal Engineers' Trust Funds under Royal Charter.

Of Champain's great abilities as an administrator the work of his life is sufficient evidence. But to those who did not know him it is impossible to give an idea of the peculiar charm of his character. He was liked by all who met him and loved by all who knew him. By his personal friends his loss will long be deeply mourned, and in their hearts—to use the expressive language of the country where so many of them are to be found—his place will ever remain empty.

Among the numerous tributes to his memory which the announcement of his death has called forth, none is more touching than that conveyed in a telegram sent by order of his Majesty the Shah of Persia to the writer, for communication to Lady Bateman-Champain, which, with an introductory notice, appeared in the *Times* of February 16, as follows:—

'THE LATE SIR JOHN BATEMAN-CHAMPAIN.—A correspondent writes: "On the 2nd inst. the 'Times' published an obituary notice of the late Colonel Sir John Bateman-Champain, R.E., K.C.M.G., in which some reference occurred to the remarkable impression which that lamented officer's character had made on the people and statesmen of Persia and on the Shah himself, an

impression originally made during his work in the country many years ago, and maintained by his occasional visits of inspection since. The depth of that impression comes out forcibly in a circumstance which has occurred since Sir John Bateman-Champain's death. The following telegram, sent by order of the Shah himself, will in a measure speak for itself; but by those who know how unusual a step this is for his Majesty to take, and how special in significance is this departure from the rigid etiquette of the Court of Teheran, this testimony to Colonel Champain's qualities will be appreciated as of a very exceptional and striking character. And the expression of such a feeling regarding a British officer who had been so long and intimately associated with Persia is, in its public bearing, by no means to be undervalued. To all but the very few Englishmen who already knew something of the Shah's personal character, this example of his Majesty's appreciation of noble qualities, and the touching delicacy with which he expresses his feelings of sincere sympathy with the bereaved, will come almost as a revelation:—'Téhéran, 10 février. A la famille Champain.—Par ordre de Sa Majesté Impériale mon auguste maître, je viens vous exprimer ses vifs regrets en apprenant la perte douloureuse que vous avez faite dans la personne estimée de Monsieur Champain, qui a laissé tant de souvenirs ineffaçables en Perse.—Le Ministre des Affaires Etrangères, YAHIA.'"'

[From a memoir in the *Royal Engineers' Journal*, March 1887, by Major-General Sir Robert Murdoch Smith, K.C.M.G.]

COLONEL DAVID WARD, R.E.

COLONEL DAVID WARD, Royal (late Bengal) Engineers, was born on July 6, 1835. He was the son of the Rev. Randall Ward, M.A., his mother being the daughter of William Ironside, Esq., of Houghton, Durham. After a preliminary training at private schools

he joined the Honourable East India Company's Military College at Addiscombe as a cadet in August 1852. There he was a universal favourite, from his joyous disposition and invariable good temper, as well as from his superiority and skill in field-sports. His first commission was obtained in the Hon. East India Company's Corps of Engineers in August 1854, and, after passing through the course of Military and Civil Engineering at Chatham, he was posted to the Corps of Bengal Engineers, as Second Lieutenant, in 1856. On arriving in India he was attached to the Bengal Sappers and Miners, then stationed at Roorkee. On the outbreak of the Indian Mutiny in May 1857, the headquarters and six companies of the corps were ordered to Meerut. The order was received at 7 A.M., and by five o'clock on the same evening a sufficient number of boats had been collected, through the energy of the Commanding Officer, the late Captain E. Fraser, and the Adjutant (now General F. R. Maunsell, C.B.), for the transport of the troops down the Ganges Canal to a point about eight miles distant from Meerut, whence a forced march was made by night to the station. The country at that time was in a most disturbed state, as, in addition to the destruction caused by the mutineers, bands of marauders called Goojurs roamed about, destroying the canal works and any Government property on which they could lay hands, and committing murders and other atrocities. In the work of repairing the canal-locks, as well as in the embarkation of the troops, and in the mutiny at Meerut when Captain Fraser lost his life, Lieutenant Ward rendered conspicuous service, and his conduct was specially brought to the notice of the military authorities. He afterwards accompanied the force that proceeded to Delhi from Meerut under the command of Brigadier-General Sir Archdale Wilson. He was present at the action on the Hindun River on May 28, where the rebels were defeated with the loss of all their guns, and at the Battle of Badli-ka-Serai on June 8. He served throughout the whole of the memorable Siege of Delhi, and was one of the Engineer officers engaged on the final

assault of the city on September 14, 1857. On that occasion, out of seventeen officers of Engineers engaged with the different storming columns, no less than ten were either killed or wounded. After the capture of Delhi, Lieutenant Ward accompanied the column under General Greathed, and was present at the attack on Futtehpore, In March 1858 the force under Lord Clyde had concentrated before Lucknow, and, during the arduous service in the trenches and batteries before the capture of the city, Lieutenant Ward was actively engaged. He next took part in the Rohilkund campaign, in April and May 1858, and was present at the attack on Fort Rohiya, the action of Alligunge, and the capture of the town of Bareilly. He also served in Oude at the close of 1858 and in the early part of 1859, and was present at the surrender of Fort Amethie and the Battle of Toolsipore. For his services during the Indian Mutiny, Lieutenant Ward received the Indian medal, with clasps for Delhi and Lucknow, and his name was mentioned in despatches on several occasions.

The Mutiny having been quelled, and there being no further prospect of military service, Lieutenant Ward applied to be appointed to the Public Works Department, and was posted to the Fyzabad Division, as an Assistant Engineer, in February 1859. Large works, in connection with the housing of the troops, were at that time in progress, which required much energy and engineering skill on the part of the officers engaged. For the able manner in which he carried out his work Lieutenant Ward was promoted to the grade of first-class Assistant Engineer, and he was transferred to Seetapore as Executive Engineer, fourth class, in March 1861. On January 17, 1865, he was promoted to the rank of Captain, and in April 1865 to second-grade Executive Engineer, his reputation as an able and skilful Engineer being now thoroughly established.

Constant exposure during the campaign of 1857–58, combined with the subsequent laborious nature of his duties, had severely tried Captain Ward's health, so that he was recommended to take

leave to England for eighteen months on medical certificate. On his return to India in 1867 he was posted to the North-West Provinces, and in August 1868 he was placed in executive charge of the Chakrata Division. Chakrata, which is now a large hill-station in the Himalayas, distant about fifty miles from Mussooree, was at that time an uninhabited hillside, covered with forest, without roads or water. The construction and laying out of the large system of barracks, hospitals, and other buildings now forming the station, was entrusted to Captain Ward—a work which he carried out in a most able manner. In addition to the erection of the above-mentioned buildings, a new cart-road had to be laid out leading to the plains, and a system devised for the supply of water, which was brought from a distant hill by a series of wooden shoots and aqueducts. In August 1869 he was promoted to the rank of first-grade Executive Engineer. Those who knew Captain Ward at Chakrata at this time can testify to his indefatigable attention to the work under his charge, and to the great esteem in which he was held.

On the separation of the Military Works from the Public Works Department in 1872, Captain Ward was appointed to the second Chakrata Division, which comprised the designing and erection of new buildings. He obtained his regimental Majority on July 5, 1872, and took furlough to England, on private affairs, in November 1873; being elected an Associate of the Institution of Civil Engineers in December 1873.

Returning to India in January 1875, Major Ward was posted to the Second Circle of Military Works, and assumed charge of the second Rawul Pindi Division in April 1876. On February 9, 1877, he was promoted to the rank of Superintending Engineer (temporary), and the rank was made permanent in January 1879. On December 31, 1878, he was raised to the rank of Lieutenant-Colonel. In November 1879 he assumed charge of the Sirhind Military Works, and of the Architectural and Buildings Circle in December of the same year. At the close of the same year he

took furlough to England for a period of two years, and on his return to India in November 1882 was appointed to the Meerut Command Military Works. He was promoted to the rank of Colonel by brevet on December 31, 1882. He remained in charge of the Meerut Command Military Works until 1885, when he was transferred to the headquarters of the Inspector-General of Military Works for special duty in connection with designs for fortifications and military buildings. During the period that Colonel Ward was Superintending Engineer of the Meerut Command, many large buildings and other important works were constructed at various stations. An idea of the large extent of the work over which he had control may be gathered from a statement of the principal stations comprising the Meerut circle, viz. Meerut, Bareilly, Landour, Chakrata, Roorkee, Shahjahanpore, Moradabad, Rainkhet, and several smaller stations. At Meerut he was a universal favourite; and the hospitality dispensed by Colonel and Mrs. Ward at that station and at Mussooree was widely known, and extended to all classes.

Colonel Ward took great interest in the welfare of the Royal School for Daughters of Officers of the Army, of the Indian Committee of which he was a member. In April 1886 he was transferred from the Military Works to the Public Works Department, and was appointed Chief Engineer and Secretary to the Chief Commissioner of the Central Provinces, with the rank of Chief Engineer, third class. He was promoted to be Chief Engineer, second class, in December 1886. He was again promoted to be Chief Engineer, first class (temporary rank), in April 1887, and was appointed Chief Engineer and Joint Secretary to the Government of the North-West Provinces, in the Public Works Department, in October 1887. Colonel Ward held the latter high appointment at the time of his death, which took place at Naini-Tal, from cirrhosis, after a very short illness, on April 12, 1888. He was one of the few remaining officers of the Hon. East India Company's Corps of Engineers. During his long and varied

career his professional attainments and cheerful equanimity under difficulties gained the esteem of all who knew him. Possessed of sound practical and theoretical attainments, he was one of the most modest of men. Those who had the privilege of Colonel Ward's intimate acquaintance during the whole of his career testify that no one ever heard any but expressions of admiration and respect for his ability as an officer, and for his upright and honourable character.

CAPTAIN JAMES DUNDAS (1842–1879)

ELDEST son of George Dundas, one of the Court of Session in Scotland, was born on September 12, 1842. He was educated at the Edinburgh Academy and East India Company's Military College at Addiscombe, received a commission in the Royal (late Bengal) Engineers in June 1860, and, proceeding to India in March 1862, was appointed to the Public Works Department in Bengal.

In 1860 he accompanied the expedition to Bhootan under General Tombs, and was awarded the Victoria Cross for his distinguished bravery in storming a blockhouse which was the key of the enemy's position, and held after a retreat of the main body. Fearing that protracted resistance might cause the Bhoteas to rally, General Tombs called upon a body of Sikh soldiers to swarm up a wall. The men, who had been fighting in a broiling sun on very difficult ground for upwards of three hours, hesitated until Major W. S. Trevor and Dundas of the Royal Engineers volunteered to show the way. They had to climb a wall fourteen feet high, and then to enter a house occupied by some two hundred desperate men, head foremost, through an opening not more than two feet wide. After the termination of the Bhootan Expedition Dundas rejoined the Public Works Department, in which his ability and varied and accurate engineering knowledge won for

him a high position. In 1879, on the fresh outbreak of the Afghan War, he found his way to the front, and was killed with his subaltern, Lieutenant Nugent, Royal Engineers, on December 23, 1879, while engaged in blowing up the towers of some villages near Kabul, owing to an untimely explosion caused by a defective fuse. The General Order referring to the services of the Royal Engineers in this campaign, issued by Sir Frederick Roberts, contained an appreciative notice of Dundas's services. A monument was erected by his relatives and friends in Edinburgh Cathedral, and his brother officers of the corps of Royal Engineers have placed a stained-glass window to his memory in Rochester Cathedral.

[From a Memoir by Colonel Vetch, Royal Engineers, in the *Dictionary of National Biography*.]

MAJOR JOHN ECKFORD

Major John Eckford, who died at Netley Hospital on August 19, 1881, was a Scotchman on both sides of his parentage, and received his earlier education in Edinburgh. Later on he went to Wimbledon School previous to entering Addiscombe, where his career was exceptionally brilliant. At the final examination there he scored an unusual total of marks, gained the Sword of Honour and Pollock Medal, and several prizes for specific subjects. Receiving his commission in December 1855, he about two years later, after the usual time at Chatham, reached India, when the Mutiny was practically quelled. He was in time, however, to see some service in the field, but it was of so insignificant a kind that, characteristically, he never moved for the medal to which he was entitled. Henceforward his duties were entirely civil, at first in the Irrigation and subsequently in the Telegraph Department, the workshops of which he reorganised, and of which he was superintendent at the time of his death. With no military distinctions, he was nevertheless one of the foremost men in the corps. Highly

gifted intellectually, duty no less than inclination prompted him to cultivate his mind as a preparation for advancement, for he held strongly that no one is fit for highly responsible positions who does not keep himself, as far as possible, on a level with current events, and with the thoughts, investigations, and discoveries of the day; that it is a man's business to resist the tendency, too common—especially in exhausting climates—to degenerate into a mere official machine. His wide reading and tenacious and reproductive memory made him a man of mark in any society. But the intellectual side of his character, striking as it was to all who came in contact with him, was less impressive than the vivid personality and straightforward manliness which gave a stamp to everything that he did and said. His opinions were his own, formed independently, expressed, if necessary, forcibly, and followed always courageously. To say all this is to say that he was an exceptional man, and yet the writer of this memoir feels that words which might seem to others exaggerated would give inadequate expression to the feelings of his intimates. Yet only these can appreciate his large-hearted and wide-reaching sympathy, which recognised no distinction of rank, and which consequently won him admiration and love among high and low.

In his work never sparing himself, he was always ready to devote his leisure to others; and, to say nothing of pecuniary aid, many can recall how in difficulties his manly advice has given fresh heart, and his cheery robust presence at a bedside revived hope. His remarkable qualities were as conspicuous in his earlier as in his later years. He was a standard of conduct to his schoolfellows, and, when at Addiscombe, the Governor did him the extraordinary honour of making a private report in his favour to the Board of Directors of the East India Company, which was quoted by the Chairman on the examination day. Yet with all this, he was as much the reverse of a prig as it is possible to imagine. No man could more appreciate a joke, and his features, habitually grave when in repose, could sparkle with merriment and fun, while his

humour was of the best sort, the sort which permits a man to laugh at himself no less than at others, and ensures a due consideration of the feelings and sensibilities of all with whom he is brought in contact. His physical was equal to his moral courage, as the following example will show. A fanatical Ghoorka was running a-muck in Dehra Dhun bazaar at a time when Eckford happened to be passing, and had already severely injured, if not killed, several people with his *kookrie* (heavy military knife). Eckford, quite unarmed, walked up and demanded his weapon. The cool courage of the action met with its reward. The man obeyed, and was at once handed over to the justice.

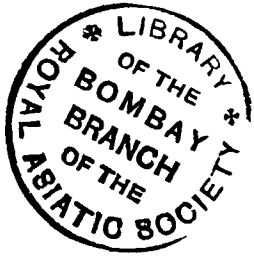
The following is extracted from the 'Times' of December 8, 1855:—

'The Chairman, in presenting the sword to Mr. Eckford, said: "I should not do justice to you or myself were I to employ any language of my own in conveying to you the thanks of the Court of Directors for the beneficial influence of your example and conduct during the last two years. Our Lieutenant-Governor, in his private report to me, speaks of you in the following terms: 'Twice in each year a sword is presented as a reward of distinguished merit.' But merit has its degrees, and when I recommend Mr. John Eckford for that distinction, I cannot allow you to think that I am performing an ordinary act of routine. During the whole of his career Mr. Eckford has attracted my particular notice by his moral and gentlemanlike conduct, by his cultivated mind, and by his cheerful and intelligent co-operation in all that concerned the welfare and reputation of this College. This high appreciation of the senior corporal is, I think, fully participated in, not only by the officers and professors, but by the whole body of the cadets among whom he is, I believe, thoroughly respected.' (Cheers.) May it please God," the Chairman added, "to give you health and strength to persevere in the course you have so well begun!"'

This wish was only partially granted. Death came too soon

for the early promise of his life to be crowned with the complete success which his friends looked for, though the reputation with which he had started was sustained and increased daily. But the strain was too great. Exposure to a pernicious climate—and his physical strength and power of endurance led him to expose himself only too carelessly—for twenty-four years, with but eighteen months' leave, weakened a naturally magnificent constitution, and he was compelled to take furlough in June 1881 before he was, by rule, entitled to it. Ill as he then was, and troubled by many things, his friends had nevertheless such confidence in his pluck and strength, that they believed he would pull through; and his keen interest in current events, and the mental vigour which he showed nearly to the last, encouraged this delusive hope. But a sudden change set in and in a few days proved fatal. No body of men but must suffer from the death of such a man in his prime; and by it the corps sustains a very real loss. But, outside as well as inside the regiment, a blow has fallen upon a very wide circle, and to his intimates there remains a deep and abiding sorrow.

[From the *Royal Engineers' Journal*, November 1881.]



APPENDICES

APPENDIX A

Memorandum for Lieutenant D. C. Home

LIEUTENANT HOME, with Lieutenant Salkeld and four European non-commissioned officers, each carrying a 25 lb. bag of powder, will accompany the covering party of Rifles that precedes the columns and will proceed to blow in the Cashmere Gate. The party will be accompanied by a bugler of the 52nd Regiment, and on the explosion causing a successful demolition, Lieutenant Home will cause the bugler to sound the regimental call, which will be a signal for the column to advance and storm the gateway.

If the demolition is not complete and the breach made quite passable, Lieutenant Home will at once send notice of the fact to Colonel Campbell, and will himself rejoin the column with his party following the first column by the breach. If from any cause whatever no explosion should take place, intimation will at once be sent to the different divisions by Lieutenant Home.

(Signed) R. BAIRD SMITH,
Lieutenant-Colonel, Chief Engineer.

Dated Camp before Delhi, September 14, 1857.

APPENDIX B

From Lieutenant D. C. Home to Lieutenant-Colonel R. Baird Smith, Chief Engineer

Sir,—In accordance with your instructions I have the honour to forward as detailed an account as possible of the proceedings of the party ordered to blow open the Cashmere Gate of the city of Delhi on the morning of the 14th inst.

Lieut. Home (Engineers)
Lieut. Salkeld (Engineers)
3 N.C.O. Sappers
14 Native Sappers
10 Punjab Pioneers

2. The covering party of the 60th Regiment Royal Rifles having advanced in skirmishing order from No. 2 Battery (left) at Ludlow Castle, the explosion party (as per margin), provided with powder bags and ladders, proceeded to the front at the double, halting once under cover to enable stragglers to come up. On advancing again Sergeants John Smith and Carmichael, and Madho Havildar, all of the Sappers, and myself arrived at the Cashmere Gate, untouched, a short time in advance of the remainder of the party under Lieutenant Salkeld, having found the palisade gate on the outside of ditch and the wicket of the Cashmere Gate open and three planks of the bridge across the ditch removed. As Sergeant Carmichael was laying his powder bag he was killed by a shot from the wicket. Havildar Madho was, I believe, also wounded about the same time.

3. Lieutenant Salkeld, carrying the slow match to light the charge, now came up with a portion of the remainder of the party, and with a view to enable him to shield himself as much as possible from the fire from the wicket, which was very severe (and the advanced party having deposited the powder bags), I slipped down into the ditch. Lieutenant Salkeld, being wounded in the leg from the wicket, handed over the match to Corporal Burgess of the Sappers, who was mortally wounded while completing the operation. Havildar Tillok was at the same time wounded while assisting Corporal Burgess into the ditch; Sepoy Rambeth was also killed at the same time. As I was assisting Lieutenant Salkeld into the ditch, I think he was wounded a second time.

4. The charge having exploded blew in the right (proper right) leaf of the gate, on which I caused the regimental call of the 52nd Regiment to be sounded as the signal for the advance of the storming party. As I was afraid that the bugle might not be heard, I caused the bugler to sound the call three times, after which the column advanced to the storm, and the gate was taken possession of by our troops.

5. I have now only to bring to your notice the gallant conduct of Lieutenant Salkeld, who was wounded while firing the charge; of Sergeant John Smith (Sappers and Miners), who arrived at the gate at the same time as myself; of Bugler Hawthorne, of the 52nd Regiment, who accompanied the party to give the signal for the advance, and who, under a heavy musketry fire, while Lieutenant Salkeld was lying wounded in the ditch, bound up his arm and leg with bandages, and exerted himself in every possible way to ease Lieutenant Salkeld; of Madho Havildar (Sappers and Miners), who arrived at the gate along with myself, and was wounded while placing the powder bags; of

Tillok Havildar (Sappers and Miners), who was of Lieutenant Salkeld's party, and was wounded while assisting Corporal Burgess into the ditch; of Jahub Singh, Sepoy (Sappers and Miners), who was one of the party who came up with powder bags along with Lieutenant Salkeld; of Tooloo Subadar (Sappers and Miners), who was of Lieutenant Salkeld's party and who, under a very heavy musketry fire, exerted himself in relieving Lieutenant Salkeld's Jemadars. I regret exceedingly that Government has lost the services of Sergeant Carmichael and Corporal Burgess of the Sappers and Miners, who were killed before the fire from the wicket, two more gallant men than whom it is difficult to meet with.

6. I have now given as succinct and correct an account of our proceedings as the excitement and bustle of the moment would allow me to achieve, and I hope that the conduct of the whole detachment under my orders will meet with your approbation. After the gate was blown in we ought to have advanced with the third assault column towards the Jumna Musjid, but we unluckily missed the column and only joined it in the Bank Compound.

I have the honour to be, &c.

(Signed) D. C. Home, *Lieutenant Engineers.*

APPENDIX C

Extract from the Report of Lieutenant-Colonel Baird Smith, Chief Engineer, Delhi Field Force, to Major-General Wilson, dated September 17, 1857.

Para. 13. The gallantry with which the explosion party under Lieutenants Home and Salkeld performed the desperate duty of blowing up the Cashmere Gate in broad daylight in face of the enemy will, I feel sure, be held to justify me in making mention of it. The party was composed, in addition to the two officers named, of the following: Sergeant John Smith, Sergeant A. B. Carmichael, Corporal F. Burgess (Sappers and Miners), Bugler Hawthorne (Her Majesty's 52nd Regiment), fourteen native Sappers and Miners, ten Punjab Sappers and Muzbis.

Covered by the fire of Her Majesty's 60th Rifles, the party advanced at the double towards the Cashmere Gate, Lieutenant Home, with Sergeants Smith and Carmichael, and Havildar Madho (all of the Sappers) leading and carrying the powder bags, followed by Lieutenant Salkeld, Corporal Burgess, and a section of the remainder of the party.

The advance party reached the gateway unhurt, and found that part of the drawbridge had been destroyed, but, passing across the precarious footing supplied by the remaining beams, they proceeded to lodge their powder against the gate.

The wicket was open, and through it the enemy kept up a heavy fire upon them. Sergeant Carmichael was killed while laying his powder, Havildar Madho being at the same time wounded. The powder being laid, the advance party slipped down into the ditch to allow the firing party under Lieutenant Salkeld to perform its duty. While endeavouring to fire the charge Lieutenant Salkeld was shot through the leg and arm, and handed over the slow match to Corporal Burgess, who fell mortally wounded just as he had successfully accomplished this arduous duty. Havildar Tillok Singh of the Sikhs was wounded, and Rambeth, Sepoy, of the same corps, was killed during this part of the operations. The demolition having been most successful, Lieutenant Home, happily unwounded, caused the bugler to sound the regimental call of the 52nd, as the signal for the advancing columns.

Fearing that amid the noise of the assault the sound might not be heard, he had the call repeated three times, when the troops advanced and carried the gateway with complete success. I feel certain that a single statement of this devoted and glorious deed will suffice to stamp it as one of the noblest on record in military history. Its perfect success contributed most materially to the brilliant result of the day, and Lieutenants Home and Salkeld with their gallant subordinates, European and native, will, I doubt not, receive the reward to which valour before the enemy so distinguished as theirs has entitled them. I have since heard that Lieutenant Salkeld is dead, but have not seen it in the returns myself.

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